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The DEMAND AND PRICE SITUATION FOR FOREST PRODUCTS 1956

FOREST SERVICE
AND
COMMODITY STABILIZATION SERVICE
U. S. DEPARTMENT OF AGRICULTURE

November 1955

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The Demand and Price Situation for Forest Products, 1956

Foreward

This report was prepared as background information for the Outlook Conference held by the U. S. Department of Agriculture in November 1955. The analysis of timber products was prepared by the Division of Forest Economics Research, Forest Service, and the analysis of naval stores by the Tobacco Division, Commodity Stabilization Service.

The outlook for 1956 is based on certain assumptions specified by the Agricultural Marketing Service. Those include a slight increase over 1955 in total economic activity and the level of construction. The brief analysis of the outlook for 1975 is based largely on assumptions concerning population trends, Gross National Product and other related factors contained in a report "Timber Resource Review", published by the Forest Service, U. S. Department of Agriculture in September 1955.

Outlook Summary

Lumber

In response to record levels of construction and industrial activity in 1955, lumber production during the first half of the year was considerably above the level attained during the first half of 1954. For the year as a whole, it is estimated that lumber production will amount to 39.5 billion board feet, about 5 percent above 1954. The West is expected to produce about half of the lumber cut, the South 35 percent and the North 15 percent.

Imports of lumber during the first half of 1955 also have been higher than in the corresponding period in 1954, and imports for the year may amount to about 3.2 billion board feet. Exports are expected to reach 1 billion board feet, or 300 million feet above the 1954 level. Lumber consumption during 1955, after allowing for some increase in the level of stocks, is expected to total about 41.0 billion board feet.

During 1956 it has been assumed that the level of construction and industrial output will increase slightly over the level attained in 1955. However, residential construction, the most important single end-use for lumber, is expected to decrease somewhat. Lumber consumption in 1956 may therefore fall slightly below current levels.

Between January and September 1955 the wholesale price index of lumber increased from 120.0 to 127.1, a rise of 6 percent. This level is slightly above the previous all-time peak of 126.7 reached in March 1951. Little change in prices is expected in 1956.

It is expected by 1975 that potential demand for lumber in the United States may amount to at least 46 billion board feet - 12 percent above the level of consumption in 1955. This estimated increase in potential demand for lumber is considerably below expected increases in population and Gross National Product. It assumes some further substitution for technological reasons and somewhat higher relative price levels for lumber.

Pulpwood

During the first half of 1955 pulpwood consumption was 15 percent above the corresponding period in 1954 as a result of an exceptionally high level of demand for paper and board. It is estimated that total consumption during 1955 will amount to about 33 million cords, or 13 percent higher than consumption in 1954, and 95 percent higher than consumption in 1945. This estimate of pulpwood consumption does not include the equivalent of an estimated 10 million cords of pulpwood that will be imported in 1955 in the form of woodpulp, paper and board.

In 1956 some further increase is expected in pulpwood consumption in response to increased demand for paper and board resulting from further increases in population and the assumed rise in Gross National Product and the continuing development of new uses for paper and paper products.

Pulpwood production from domestic forests in 1955 is expected to amount to 30 million cords or 11 percent more than the 27 million cords produced in 1954. The South is expected to account for about 60 percent of total production, the North 22 percent and the West the remaining 18 percent. Southern pine is expected to account for about 50 percent of total domestic pulpwood production, other softwoods 35 percent and hardwoods 15 percent.

The new peak in pulpwood consumption in 1955 marks a continuation of a period of extremely rapid growth in the pulp and paper industry. Since 1946 the industry has expanded rapidly through construction of new mills and addition to or modernization of existing mills. Expansion has been particularly rapid in the South where more than half of the woodpulp industry is now located.

Except in the West, the woodpulp industry depends largely upon pulpwood cut from farms and other small forest holdings. In the South, for example, about 75 percent of all pulpwood produced is cut from farm forests and other small ownerships.

Pulpwood prices have shown little change since 1951. In the Southeast, for example, prices of rough pine pulpwood have remained at about $13.85 per cord. During 1956 no significant change in the price of pulpwood is anticipated.

By 1975 it is estimated that the total demand for pulpwood will amount to at least 56 million cords, or 30 percent more than current use. It is expected that about 2 million cords may be imported in the form of pulpwood and the equivalent of about 12 million cords in the form of woodpulp and paper. Thus demand on domestic forests in 1975 may amount to at least 42 million cords, or 40 percent above current production. Sufficient supplies of domestic pulpwood are expected to be available to meet this level of domestic demand without substantial increases in pulpwood prices.

Veneer Logs and Bolts

Consumption of hardwood veneer logs since 1951 has amounted to about 1 billion board feet per year, a level of consumption that is expected to be maintained during 1956. Consumption of softwood veneer logs, practically all of which is concentrated on the West Coast, has increased from 1.2 billion feet in 1951 to an estimated 2.0 billion board feet in 1955. Most of this increase is attributed to the expanding use of softwood plywood in construction. Some further increase is expected in the consumption of softwood "peeler" logs in 1956.

Looking further ahead, substantial increases are expected in the demand for both softwood and hardwood veneer logs. By 1975 the potential demand for softwood veneer logs may amount to 2.7 billion board feet and hardwood veneer

logs to 1.8 billion board feet. A potential demand of 4.5 billion board feet would represent an increase of 50 percent over the 1955 level of consumption.

Other Timber Products

Consumption of fuelwood in the United States continues to decline as a result of shifts to other fuels and reduced farm population. In 1955 fuelwood cut from roundwood, excluding plant residues used as fuel, amounts to about 25 million cords. By 1975 the demand for fuelwood is expected to be considerably lower than that now prevailing.

Consumption of miscellaneous industrial wood products such as poles and piling, posts, mine timbers, and a variety of other minor timber products in 1956 is expected to remain near the current level of about 700 million cubic feet a year. By 1975 the potential demand for such miscellaneous industrial wood is expected to be slightly above the level prevailing in 1955.

Naval Stores

Prices for rosin and turpentine are expected to stay close to present relatively high levels well into 1956. Domestic consumption of rosin and turpentine during the present crop year are expected to be considerably higher than a year earlier with no important change likely in 1956. Supplies of rosin in the 1956-57 crop year are expected to be slightly lower than this year. Little change is anticipated in supplies of all types of turpentine. Exports of both rosin and turpentine will be lower this year because of increased foreign production. No significant change in exports is expected next year.

The favorable market situation continues the trend which started more than 2 years ago. The 1955 loan program has been inactive. A substantial part of CCC rosin and turpentine stocks have been sold this year and additional quantities are likely to move out of CCC stocks before the close of the crop year on March 31, 1956.

The Demand and Price Outlook for Lumber

Lumber consumption near record levels

Lumber consumption in the United States reached an all-time peak of about 45 billion board feet in 1906 (Chart 1). Consumption declined thereafter, except during the construction boom in the 1920's, to a depression low in 1932. Consumption then recovered sharply to a 1942 peak just under the 1906 level of lumber use. The high level of consumption in the post-war years reflects the large increase in construction and general business activity.

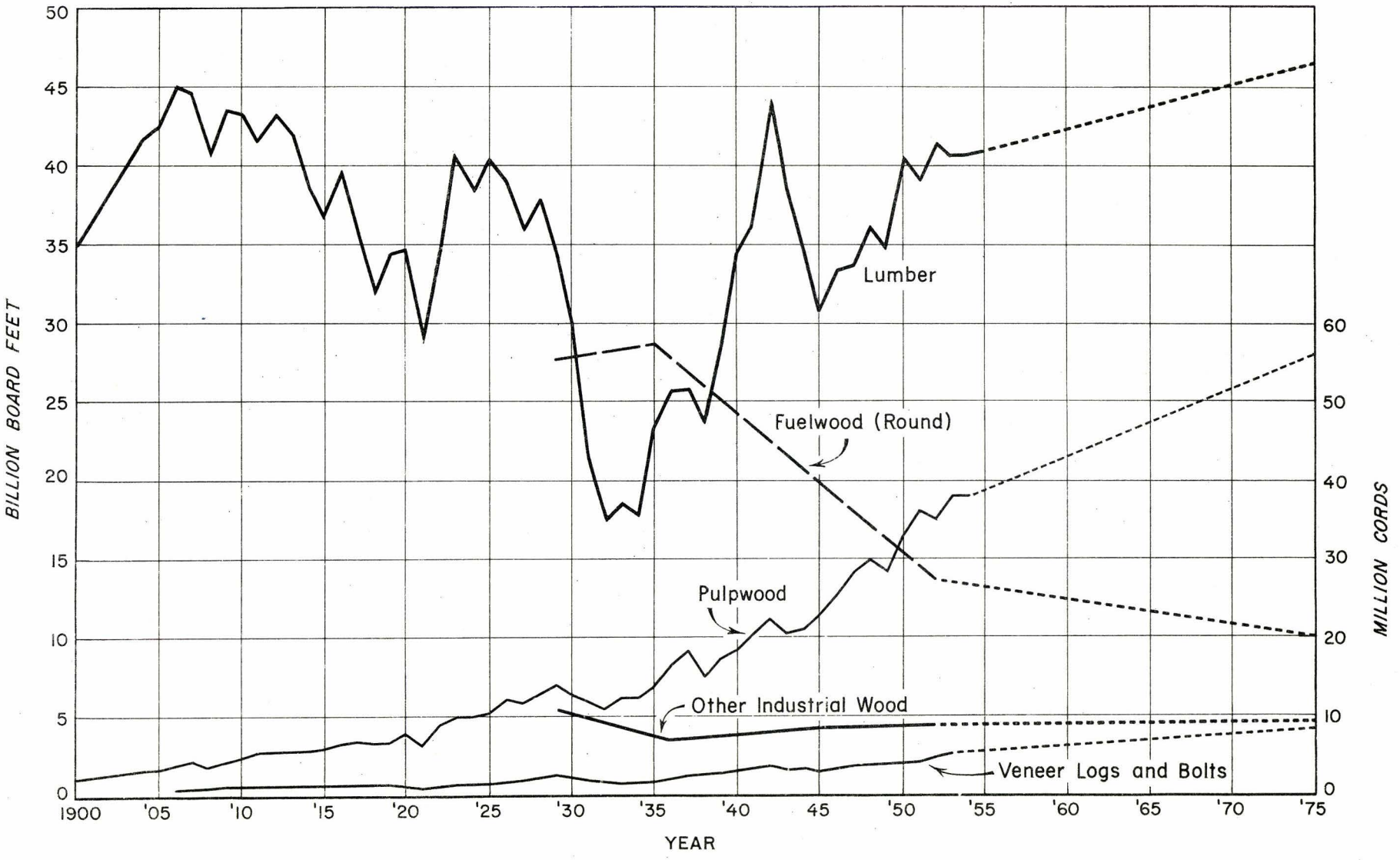
Since 1900 consumption of lumber per person has dropped from 539 board feet to 248 board feet. This has been caused largely by substitution of other materials for lumber in a number of uses. In the field of construction, where the greatest amount of lumber is used, lumber has been displaced to a certain extent by such products as steel, cinder block, plywood and building boards. Between 1939 and 1952, total construction activity increased by about 70 percent, but use of construction lumber increased only 35 percent compared with an increase of 100 percent for construction steel and cement, 200 percent for softwood plywood and more than 1,000 percent for building board. Use of lumber in fabricated products and shipping has also been reduced as a result of competition from paper and board, plywood, glass, metals, and other materials.

Construction accounts for about 75 percent of total lumber consumption

Construction has been the most important end-use for lumber (Chart 2) accounting for between 70 and 75 percent of total use. Current construction activity is at a record level with expenditures for construction in 1955 (in 1947-49 dollars) amounting to an estimated $33.7 billion - about 9 percent more than expenditures in 1954, as shown below.

Chart 1

CONSUMPTION AND POTENTIAL DEMAND FOR FOREST PRODUCTS IN THE UNITED STATES - 1900 - 1975



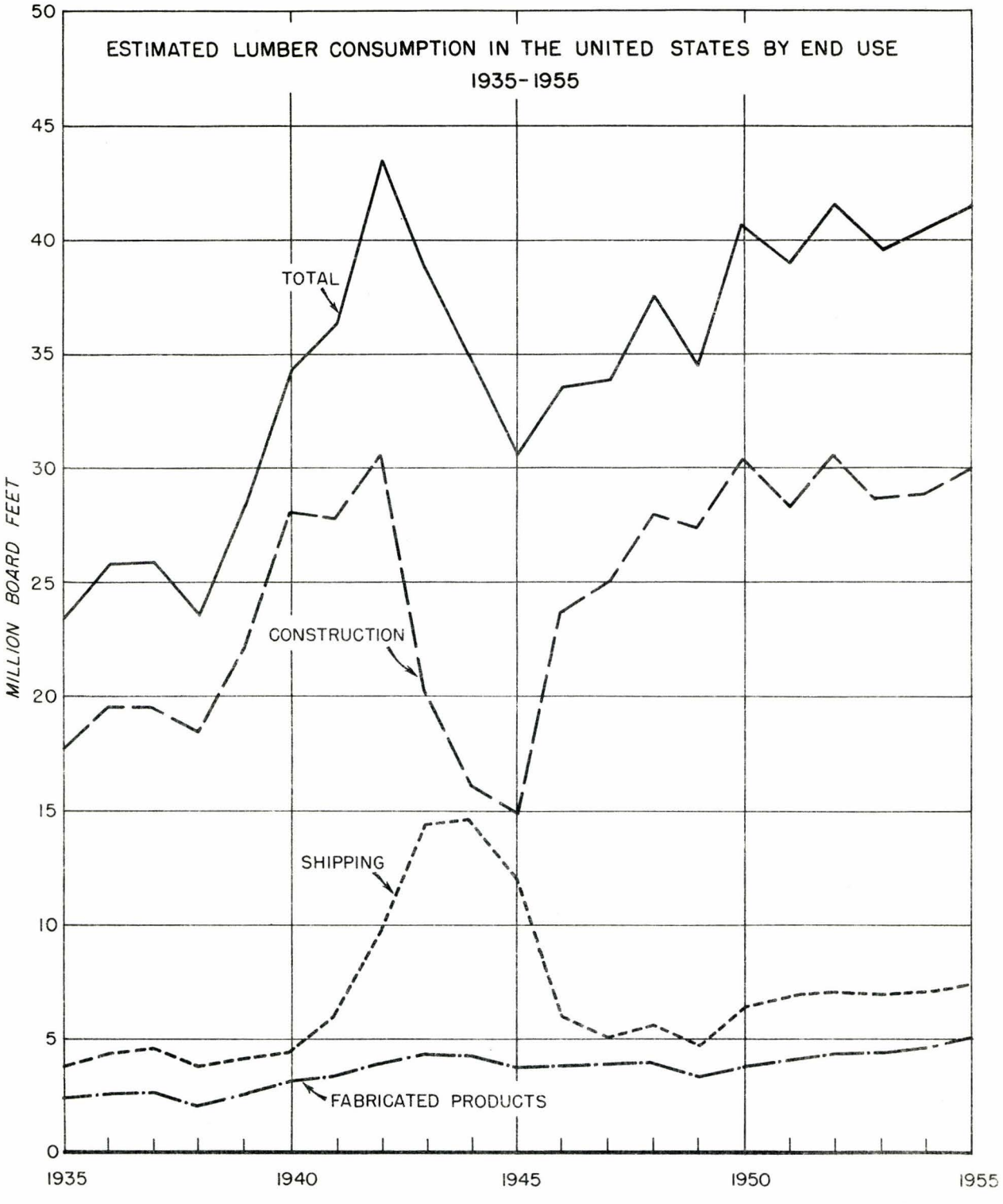

ESTIMATED LUMBER CONSUMPTION IN THE UNITED STATES BY END USE
1935-1955
MILLION BOARD FEET
50
45
40
35
30
25
20
15
10
5
0
TOTAL
CONSTRUCTION
SHIPPING
FABRICATED PRODUCTS
1935
1940
1945
1950
1955

Chart 2

Year	Total construction activity	New residential building construction activity	New non-residential building construction activity	All other new construction activity
		(Billions of Dollars)		
1939	16.2	5.6	4.0	6.6
1940	16.9	6.3	3.5	7.1
1941	21.8	7.2	6.0	8.6
1942	22.9	3.9	7.2	11.8
1943	12.8	2.7	3.6	6.5
1944	8.2	1.5	2.9	3.8
1945	8.4	1.7	3.1	3.6
1946	15.5	5.7	5.0	4.8
1947	17.8	6.9	4.0	6.9
1948	20.8	8.3	4.7	7.8
1949	22.2	8.5	5.1	8.6
1950	26.9	11.9	5.9	9.1
1951	27.0	10.0	7.5	9.5
1952	27.7	9.9	7.7	10.1
1953	28.9	10.3	8.2	10.4
1954	30.9	11.5	8.8	10.6
1955	33.7	12.7	10.0	11.0

Source: U. S. Department of Commerce, U. S. Department of Labor, CONSTRUCTION REVIEW.

In 1956 some further slight increase is expected in the volume of construction, although residential construction is expected to decline. During the next few years residential construction and lumber use may be somewhat lower than in 1955 because the formation of new households is expected to decline temporarily as a result of the low birthrates that prevailed in the depressed 1930's. Residential construction will tend to be maintained, however, by such factors as the continuing movement of city populations to the suburbs, current high birthrates which require larger houses, and increases in disposable income which will permit improvement in the general level of housing. Government policy to provide liberal credit or otherwise encourage housing construction is also likely to continue to be an important factor.

Looking further ahead to 1975 substantial increases are anticipated in residential construction. Demand for new dwelling units in 1975 may amount to 2.2 million units, or approximately a million units above the level of residential construction in 1955.

During 1956 lumber consumption in farm and railroad construction is expected to remain near the levels that have prevailed during the last several years. Lumber consumption in other types of construction such

as industrial, commercial, institutional, recreational, military and public utility is expected to increase slightly in 1956 in response to increased construction activity. By 1975 the potential demand for lumber of non-residential construction is expected to show further significant increases.

Lumber use in shipping and fabricated products also important

Between 15 and 20 percent of all the lumber consumed in the United States is used for shipment of agricultural and industrial commodities. Thus the quantity of lumber used in shipping is closely identified with the level of economic activity. It is assumed that in 1956 there will be some further increases in the production of goods in the United States, indicating a slight increase in lumber consumption for shipping.

By 1975 the demand for lumber in shipping is expected to decrease by about 7 percent to a level of 6.5 billion board feet.

The third major end-use for lumber is in fabricated products such as furniture, millwork and a wide variety of other items. Quantities of lumber consumed have varied considerably from year to year depending primarily on fluctuations in business activity. Over the years it is estimated that between 10 and 15 percent of total lumber consumption has been for fabricated products. As a result of the assumed decrease in the output of durable goods in 1956, a slight decline in lumber consumption from current levels is probable.

In 1975 the potential demand for lumber in fabricated products is expected to amount to about 6 billion board feet - 43 percent higher than at the present time. This primarily reflects the expected increase in population and high levels of future industrial activity. Increased furniture production to meet the needs of a rapidly expanding population will play a particularly important role in increasing demands for lumber in fabricated products.

For all lumber uses combined, it is expected that consumption in 1955 will amount to about 41 billion board feet. In 1956 consumption may drop slightly in response to an anticipated drop in residential construction. By 1975, potential demands for lumber in the United States may amount to at least 46 billion board feet - 12 percent above the level of consumption in 1955.

Domestic production supplies most lumber needs

Domestic lumber production accounts for about 96 percent of all the lumber consumed in the United States. In the period 1950 through 1954, for example, production averaged 38.4 billion board feet, compared with total imports of 2.9 billion board feet, and net imports of 2.2 billion board feet (Table 1). Softwood lumber from Canada has made up most of the lumber imports. Hardwood lumber from tropical countries, while highly important for some special uses, accounted for only a small part of total lumber imports.

Table 1

Lumber production, imports, exports, and consumption in the United States for selected years 1899-1955

Year	Domestic production	Imports	Exports	Stock changes	Apparent consumption
	Billion board feet				
1899	35.1	0.4	1.4	na	34.1
1905	43.5	0.7	1.8	na	42.4
1910	44.5	1.1	2.2	na	43.4
1915	37.0	0.9	1.3	na	36.6
1920	35.0	1.4	1.7	na	34.7
1925	41.0	1.8	2.6	na	40.2
1930	29.4	1.2	2.4	na	28.2
1931	20.0	0.7	1.7	na	19.0
1932	13.5	0.4	1.2	na	12.7
1933	17.2	0.4	1.3	na	16.3
1934	18.8	0.3	1.3	na	17.8
1935	22.9	0.4	1.3	-1.3	23.3
1936	27.6	0.7	1.3	1.3	25.7
1937	29.0	0.7	1.4	2.4	25.9
1938	24.8	0.5	1.0	0.7	23.6
1939	28.8	0.7	1.1	-	28.4
1940	31.2	0.7	1.0	-3.4	34.3
1941	36.5	1.4	0.7	1.0	36.2
1942	36.3	1.5	0.5	-6.5	43.8
1943	34.3	0.9	0.3	-3.9	38.8
1944	32.9	1.0	0.4	-1.1	34.6
1945	28.1	1.1	0.4	-1.8	30.6
1946	34.1	1.2	0.6	1.2	33.5
1947	35.4	1.3	1.4	1.5	33.8
1948	37.0	1.9	0.6	1.9	36.4
1949	32.2	1.6	0.7	-1.3	34.4
1950	38.0	3.4	0.5	0.2	40.7
1951	38.4	2.5	1.0	0.9	39.0
1952	39.5	2.5	0.7	-0.2	41.5
1953	38.7	2.8	.6	0.4	40.5
1954	37.5	3.1	.7	-0.6	40.5
1955	39.5	3.2	1.0	.7	41.0

na - Not available

Source: Bureau of the Census, U. S. Department of Commerce; Forest Service, U. S. Department of Agriculture; and National Retail Lumber Dealers Association.

Softwoods account for most lumber used

Softwoods have constituted about 80 percent of all lumber used in the United States. There is a considerable difference between the use of softwood and hardwood lumber in the major end-uses, however. Thus in the period 1947 through 1952, softwood lumber accounted for 91 percent of the lumber used in construction, but only 68 percent of lumber used in shipping and 31 percent of the lumber used in fabricated products.

While softwood lumber is preferred for construction purposes and hardwood lumber for manufactured products, there are some fields of use in which either hardwood or softwood lumber can be utilized. Because a greater price increase is anticipated for softwood lumber, it is expected that by 1975 hardwood lumber may replace softwood to some extent.

More than half the lumber now produced in the West[1/]

Lumber production in the West has increased from 3.5 billion board feet in 1900 to an estimated 20.0 billion board feet in 1955 (Table 2, Chart 3). The present western cut amounts to more than half of all the lumber produced in the United States. It includes nearly two-thirds of the softwood lumber.

The West is expected to continue to be the most important region of lumber production for some time because of its relatively great wealth of standing saw timber (Chart 4). Altogether this region contains about 1,345 billion board feet of saw timber, or about two-thirds of the nation's total supply. In terms of softwoods, which account for about 80 percent of the lumber used in the country, the West is in an even better position with 80 percent of the softwood saw timber. Most of this volume moreover, is old-growth timber of relatively high quality.

At the present time the cut in the West is far in excess of growth (Chart 5). This can be expected to continue until most of the old-growth areas are harvested and new second-growth forests predominate. As the backlog of old-growth timber is cut, it is inevitable that the relative importance of the West as a lumber producing region will decline. Commercial forest lands in the West make up only 24 percent of the nation's timber growing area.

Lumber production in the South has declined since 1910 when a peak of about 20 billion board feet was reached. (Table 2, Chart 6). Since 1940, however, practically no change has occured in total lumber

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1/ The West includes the eleven western states and South Dakota. The South includes the twelve most southern states including Virginia. The North includes all other states.

Table 2

Estimated lumber production in the United States by regions, and by hardwoods and softwoods, selected years 1899-1955

Year	All regions			North			South			West
	Total	Hardwoods	Softwoods	Total	Hardwoods	Softwoods	Total	Hardwoods	Softwoods	Total 1/
	Billion board feet									
1899:	35.1	8.9	26.2	18.6	6.6	12.0	12.9	2.3	10.7	3.5
1905:	43.5	10.5	33.0	20.1	7.3	12.8	16.5	3.3	13.3	6.9
1910:	44.5	10.5	34.0	15.6	7.5	8.0	20.0	2.9	17.1	8.9
1915:	37.0	7.5	29.5	10.0	4.7	5.3	18.8	2.8	16.0	8.2
1920:	35.0	7.4	27.6	6.9	3.8	3.0	16.0	3.5	12.5	12.1
1925:	41.0	7.7	33.3	6.0	3.6	2.5	19.6	4.1	15.5	15.3
1930:	29.4	6.1	23.3	4.5	2.9	1.6	12.6	3.2	9.4	12.2
1935:	22.9	4.7	18.2	3.8	2.4	1.5	10.0	2.3	7.7	9.1
1940:	31.2	5.5	25.7	4.6	2.9	1.7	13.3	2.6	10.7	13.2
1941:	36.5	6.6	29.9	5.3	3.3	2.0	15.5	3.3	12.2	15.7
1942:	36.3	6.8	29.5	5.1	3.2	2.0	15.6	3.6	12.0	15.6
1943:	34.3	7.4	26.9	4.9	3.2	1.7	14.3	4.2	10.2	15.0
1944:	32.9	7.8	25.2	5.4	3.5	1.9	12.6	4.3	8.3	15.0
1945:	28.1	7.0	21.2	4.5	2.8	1.7	11.5	4.1	7.4	12.1
1946:	34.1	8.3	25.9	4.9	3.1	1.9	14.7	5.1	9.6	14.4
1947:	35.4	7.4	28.0	5.4	3.4	2.0	13.6	4.0	9.6	16.3
1948:	37.0	7.4	29.6	6.0	3.4	2.6	13.2	4.0	9.2	17.8
1949:	32.2	5.7	26.5	4.1	2.6	1.5	11.6	3.1	8.5	16.5
1950:	38.0	7.4	30.7	4.9	3.0	2.0	14.6	4.4	10.2	18.6
*1951:	38.4	8.0	30.4	5.2	3.2	2.0	14.0	4.8	9.2	19.3
*1952:	39.5	8.0	31.4	5.3	3.4	1.9	14.2	4.5	9.7	19.9
*1953:	39.0	8.0	31.0	5.2	3.2	2.0	13.8	4.8	9.0	20.0
*1954:	37.5	7.8	29.7	5.1	3.1	2.0	13.5	4.7	8.8	19.0
*1955:	39.5	8.0	32.0	5.2	3.2	2.0	14.3	4.8	9.5	20.0

* Estimated. Subject to revision

Note: Data may not add to total because of rounding.

1/ Practically all softwoods.

Source: Bureau of the Census, U. S. Dept. of Commerce, and Forest Service, U. S. Dept. of Agriculture

Chart 3

Lumber and Pulpwood Production in the West
Selected Years, 1900 - 1955

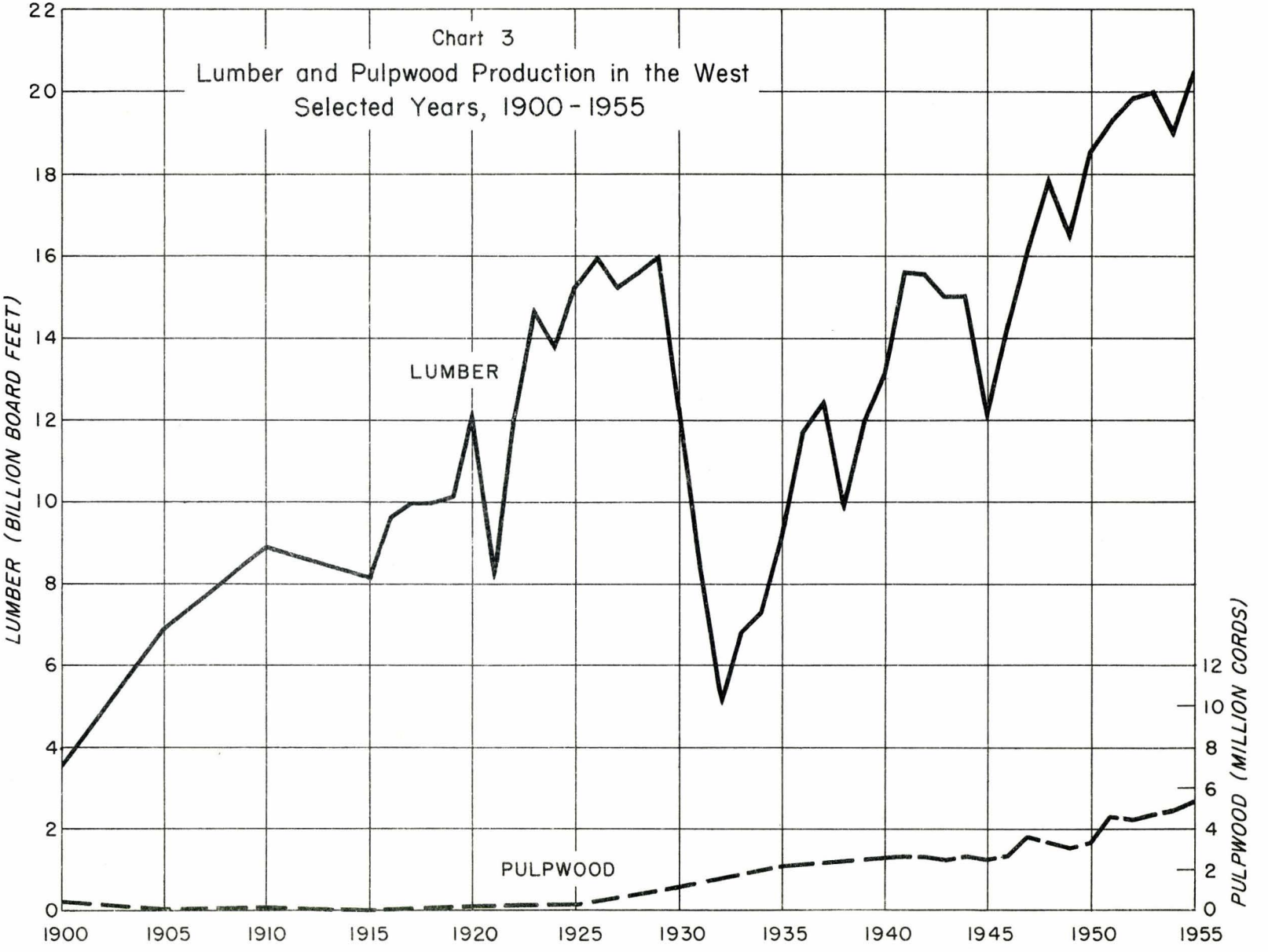


Chart 4

Distribution of Commercial Forest Land, Sawtimber Volume, and Growing Stock Volume by Region 1952

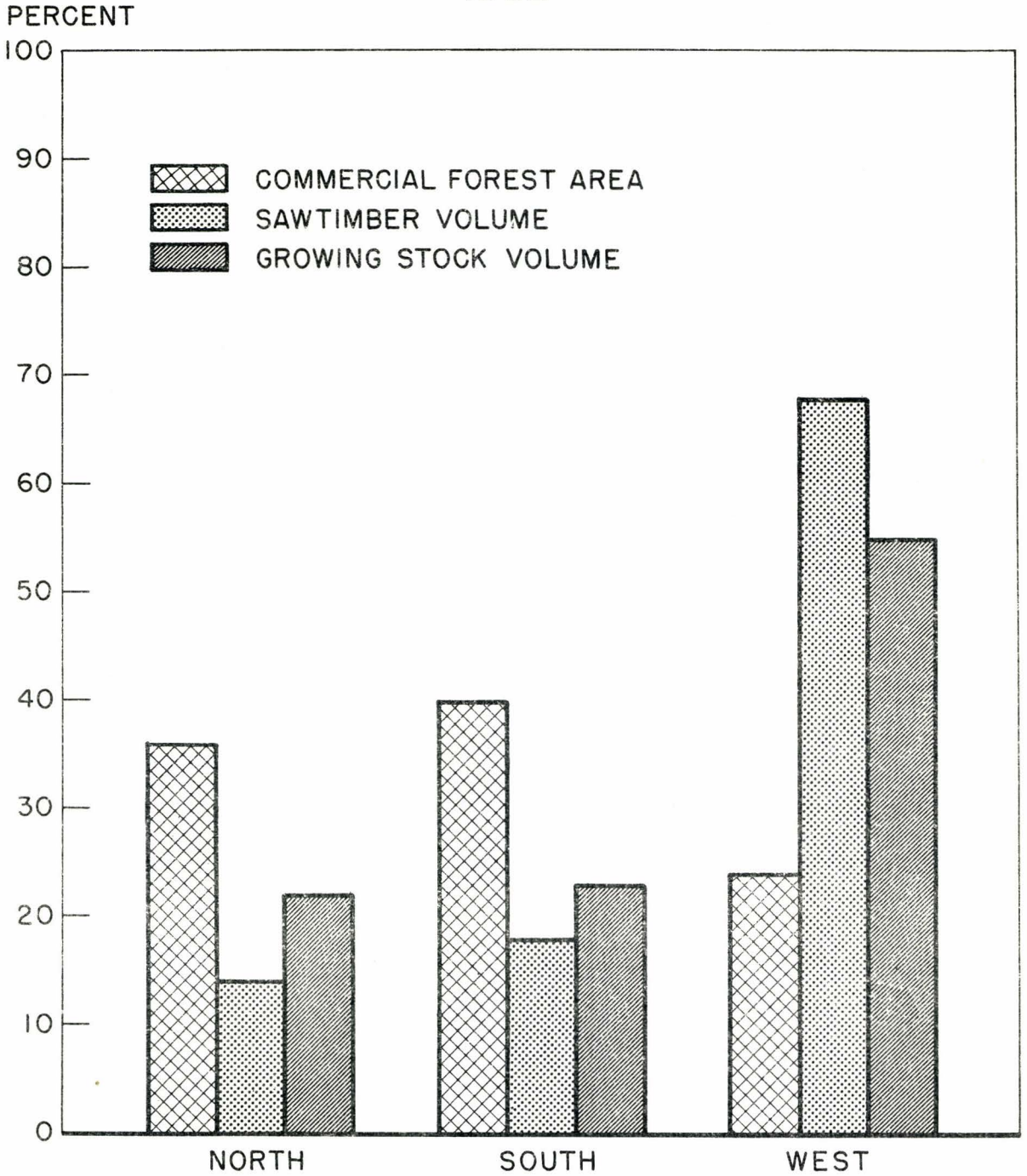
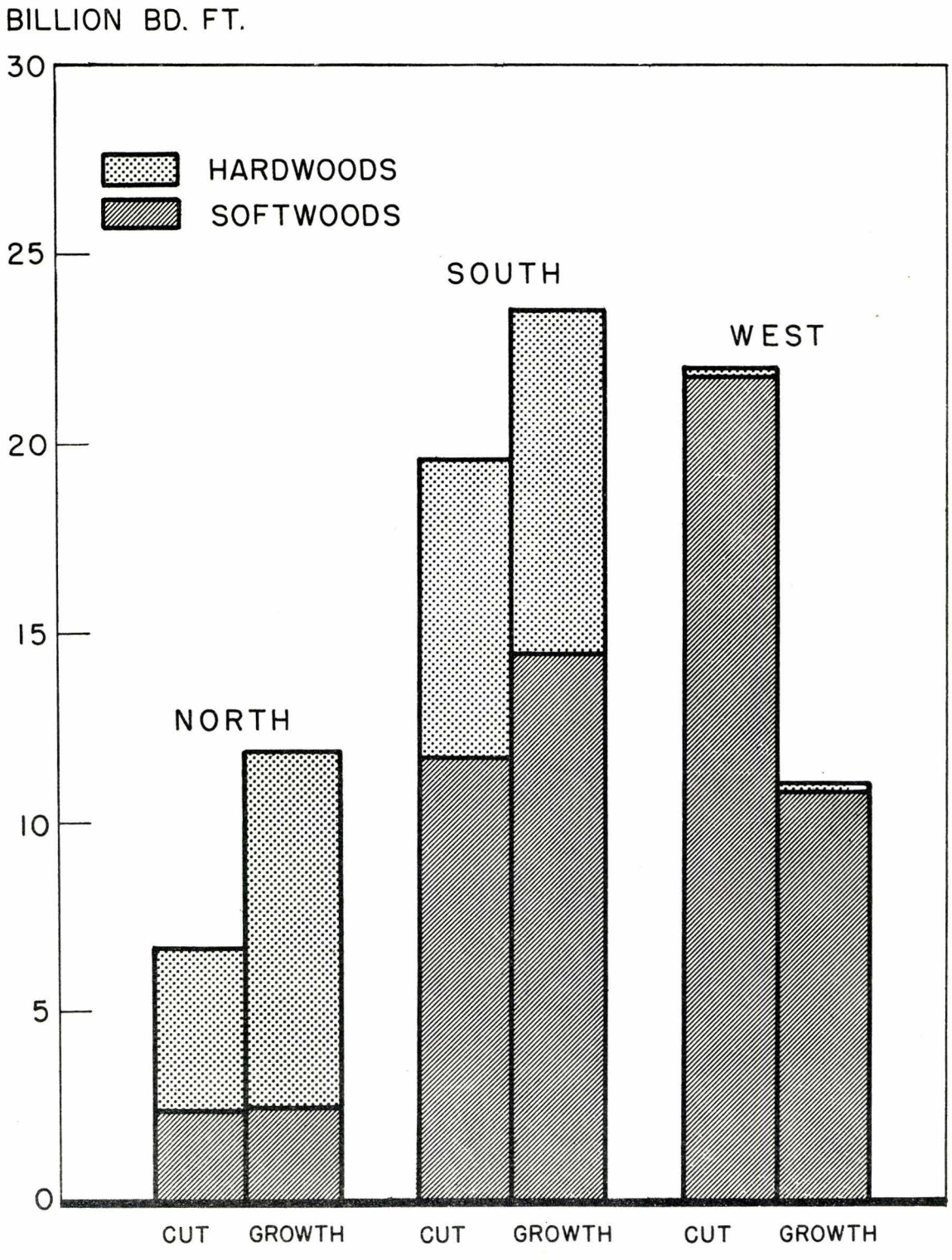


Chart 5

Comparison of Net Annual Live Sawtimber Growth with Timber Cut by Regions and by Hardwoods and Softwoods, 1952.



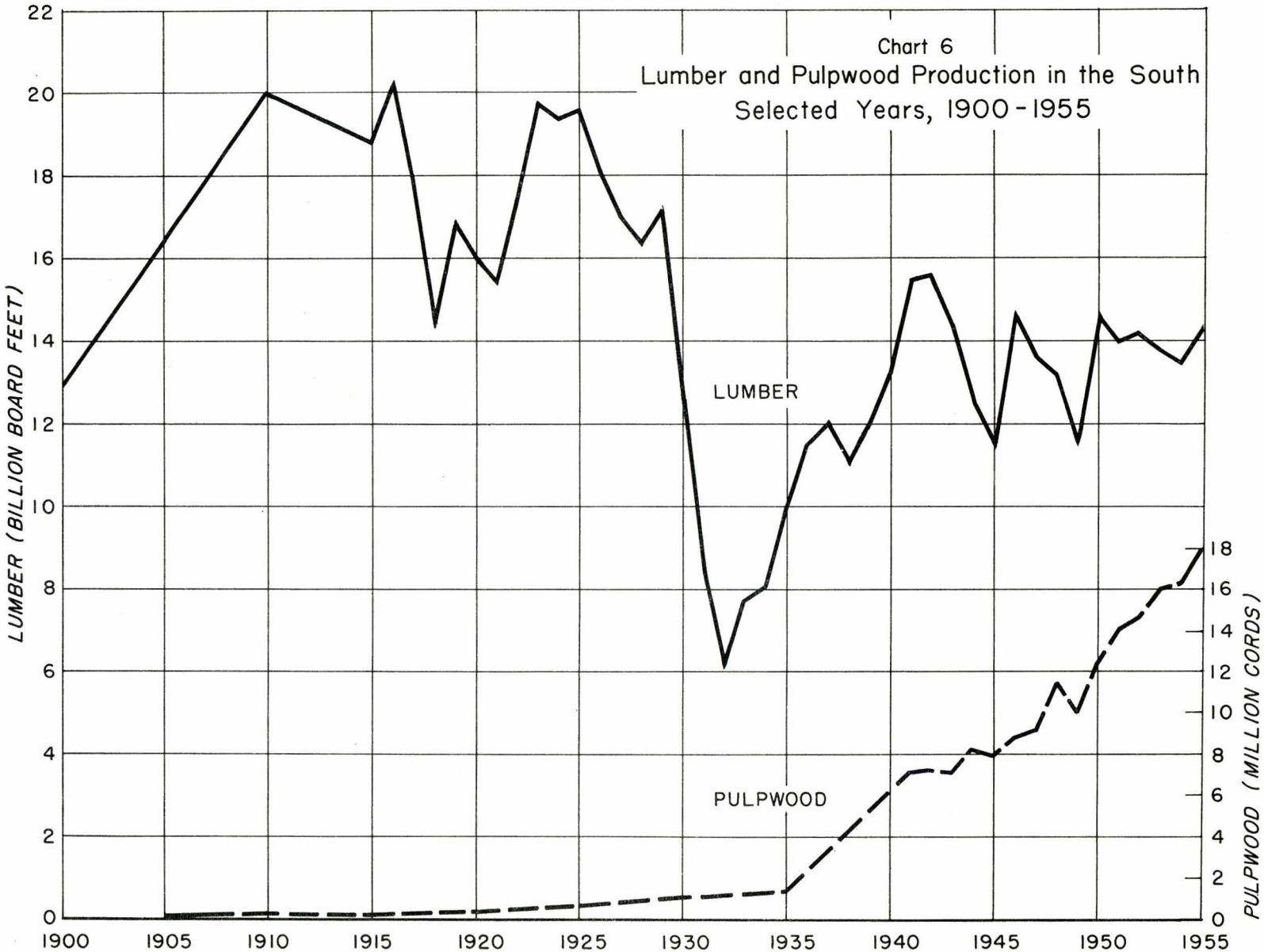


Chart 6
Lumber and Pulpwood Production in the South
Selected Years, 1900-1955
LUMBER (BILLION BOARD FEET)
PULPWOOD (MILLION CORDS)
LUMBER
PULPWOOD
0
2
4
6
8
10
12
14
16
18
20
22
1900
1905
1910
1915
1920
1925
1930
1935
1940
1945
1950
1955

production in this region, although the softwood cut has dropped while output of hardwood lumber has increased. The estimated 14.3 billion board feet expected in 1955 is about average for this period.

Because of increasing problems of saw timber supply and increasing competition from the pulp industry for wood, lumber production in the South, in the immediate future, may decline somewhat below the current level.

The South is potentially one of the most productive forest regions in the United States. The region contains about 40 percent of the nation's commercial forest land and growth rates are relatively high. At the present time this region has only 22 percent of the nation's growing stock and 17 percent of the saw timber (Chart 4). Currently growth exceeds cut for both saw timber and growing stock (Chart 5). As forestry programs are further intensified this region should furnish an increasing part of the lumber cut in the United States.

While the comparison between growth and cut in the South is favorable after many years of declining volumes, the quality of timber in this region is still declining. The drop in quality of southern pine lumber, for example, has been a major reason for the increased acceptance of western lumber in eastern markets during recent years. The favorable balance of growth also is at a level substantially below that required to meet future potential demands.

Fifty years ago the North provided half of all the lumber produced in the United States (Table 2, Chart 7) but after the peak in 1905, lumber production declined sharply to a low of less than 4 billion board feet in the 1930's. Since the mid-1930's, however, lumber production in the North has shown a moderate increase and in 1955 is expected to total 5.2 billion board feet.

The North contains 22 percent of the nation's growing stock and 13 percent of the saw timber, mainly hardwoods (Chart 4). Timber growth exceeds cut for both growing stock and saw timber (Chart 5) but as in the South average timber quality is low and growth is far below potential yields. This region contains 36 percent of the nation's commercial forest area and if forestry programs are intensified in the future, it can supply an increasing proportion of the nation's hardwood lumber production.

Lumber prices at an all-time peak

Between January and September 1955 the wholesale price index of lumber increased by about 6 percent from 120.0 to 127.1. This is slightly above the previous all-time peak of 126.7 reached in March 1951. Little change in prices is expected in 1956.

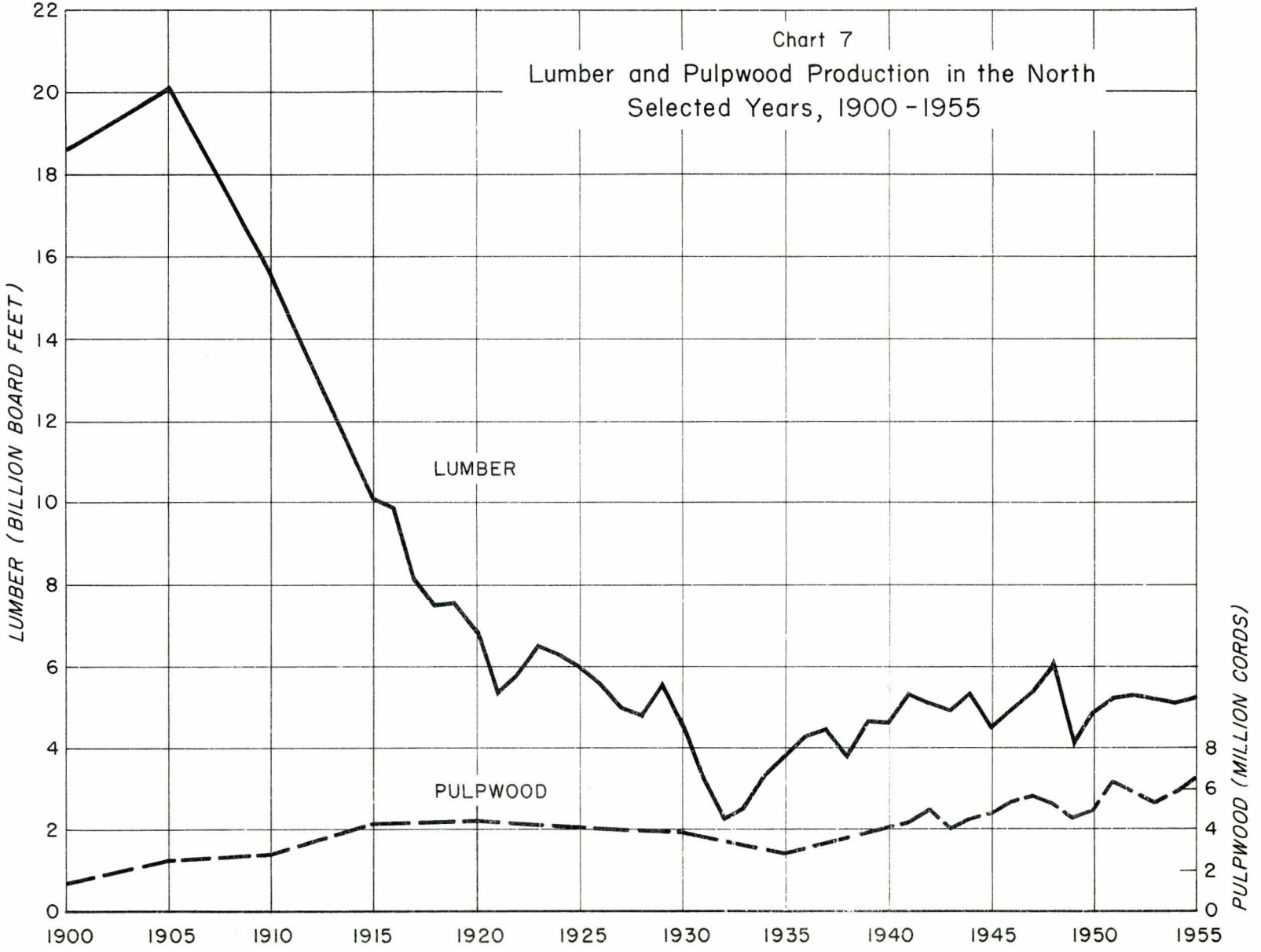


Chart 7
Lumber and Pulpwood Production in the North
Selected Years, 1900 - 1955
LUMBER (BILLION BOARD FEET)
PULPWOOD (MILLION CORDS)
LUMBER
PULPWOOD
0
2
4
6
8
10
12
14
16
18
20
22
1900
1905
1910
1915
1920
1925
1930
1935
1940
1945
1950
1955

During the period 1926 through September 1955, wholesale lumber prices increased 283 percent, climbing from an index of 33.2 in 1926 to 127.1 (Chart 8). Prices of all commodities on the other hand increased by only 72 percent during this period. In the last 4 or 5 years, however, the wholesale price index for both lumber and all commodities has shown little change.

The rise in lumber price that has occurred since 1926 has resulted from a number of factors. Wage rates, for example, have increased more rapidly in the lumber industry than in many other industries. With the diminishing availability of accessible timber of desirable market quality it has been necessary to utilize smaller and poorer quality trees which require more man-hours and equipment time per unit of lumber produced. It has also been necessary to shift logging operations into more remote regions with difficult terrain, with constant increases in logging costs. Rising values for standing timber also have been reflected in the higher lumber prices. As the lumber producing regions have become more remote from the major consuming areas transportation costs have materially added to the delivered price of lumber.

Stumpage prices also show large increase

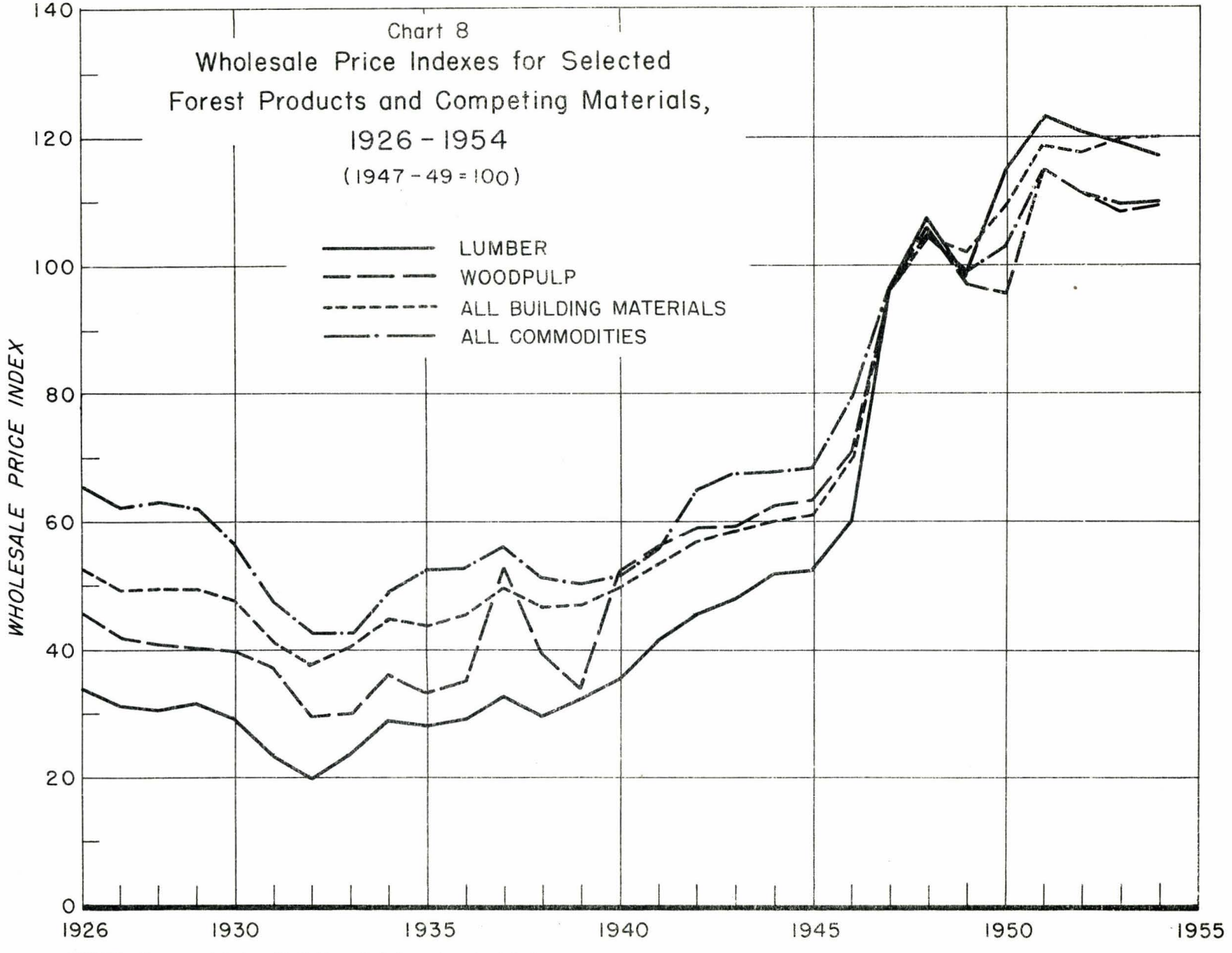
Stumpage prices have followed a rising trend similar to the wholesale price index of lumber, as shown in the following tabulation of average stumpage prices per thousand board feet for sales of national forest timber:

Fiscal year	Average stumpage prices	Fiscal year	Average stumpage prices
1926	$2.83	1941	$ 2.79
1927	2.85	1942	2.78
1928	2.74	1943	3.67
1929	2.87	1944	4.25
1930	2.91	1945	4.14
1931	2.75	1946	4.21
1932	2.44	1947	4.28
1933	2.15	1948	5.60
1934	2.33	1949	7.69
1935	2.57	1950	8.77
1936	2.60	1951	10.20
1937	2.49	1952	13.43
1938	2.50	1953	13.68
1939	2.62	1954	12.18
1940	2.76	1955	11.18

Chart 8

Wholesale Price Indexes for Selected Forest Products and Competing Materials, 1926 - 1954

(1947 - 49 = 100)



SOURCE: Bureau of Labor Statistics, U. S. Department of Labor.

This rapid rise in stumpage values has largely been the result of increasingly keen competition for available supplies of standing timber. Stumpage prices for given tracts of timber vary widely in the United States depending upon species, quality, volume per acre and other factors.

The Demand and Price Outlook for Pulpwood

Consumption rising rapidly

During the first half of 1955 pulpwood consumption was 15 percent above the corresponding period in 1954 as a result of unprecedented business activity and a resulting high level of demand for paper and board. Total consumption in 1955 is estimated at 33 million cords, or 13 percent above the consumption of 29.2 million cords in 1954, and 95 percent above consumption in 1945. This estimate, however, does not include the equivalent of about 10 million cords of pulpwood imported in 1955 in the form of woodpulp, paper and board.

In 1956 some further increase is expected in pulpwood consumption in response to a further rise in demand for paper and board resulting from continued growth of population and Gross National Product and continuing development of new uses for paper and paper products.

The pulp and paper industry has shown phenomenal growth in the past three and a half decades with pulpwood consumption rising from about 6 million cords in 1920 to 33 million cords in 1955 (Table 3).

It is estimated that by 1975, the potential demand for pulpwood will reach at least 56 million cords. It has been assumed in this estimate that there will be a considerable shift towards the use of high-yielding dense hardwoods, greater use of waste paper, and increased use of high yielding pulp processes.

U. S. increasingly self-sufficient in pulpwood

Domestic forests are being called upon to supply pulpwood for most of the rising demands for pulp and paper. In 1955, for example, pulpwood production from domestic forests is estimated at 30 million cords and net imports from Canada at 2 million cords (Table 3). In 1900, on the other hand, pulpwood imports accounted for about 20 percent of the pulpwood used by U. S. mills. Pulpwood production in the United States has now reached a point where it is equivalent in volume to 38 percent of the logs cut for lumber.

Domestic pulpwood consumed in 1955 - 31 million cords including 1 million cords from stocks - represented 94 percent of the total consumption of 33 million cords in U. S. pulp mills, and 72 percent of

Table 3

Production, net imports, and apparent consumption of pulpwood, wood pulp, and paper and board in the United States, for selected years 1899-1955

Year	Pulpwood			Wood pulp			Paper and board		
	Production	Net imports	Apparent consumption 1/	Production	Net imports	Apparent consumption	Production	Net imports	Apparent consumption
	(Million cords)			(Million short tons)					
1899	1.6	.4	2.0	1.2	--	1.2	2.2	--	2.2
1904	2.5	.6	3.1	1.9	.2	2.1	3.1	--	3.1
1909	3.2	.8	4.0	2.5	.4	2.9	4.1	--	4.1
1914	3.6	.8	4.5	2.9	.7	3.6	5.2	.2	5.4
1920	5.0	1.1	6.1	3.8	.9	4.7	7.2	.5	7.7
1925	5.0	1.1	6.1	4.0	1.6	5.6	9.0	1.4	10.4
1930	6.1	1.1	7.2	4.6	1.8	6.4	10.2	2.1	12.3
1935	6.6	1.0	7.6	4.9	1.8	6.7	10.5	2.3	12.7
1941	14.2	2.2	16.6	10.4	.8	11.2	17.8	2.7	20.4
1942	14.9	2.2	17.3	10.8	.9	11.6	17.1	2.7	19.8
1943	13.6	1.7	15.6	9.7	1.0	10.7	17.0	2.4	19.4
1944	15.3	1.6	16.8	10.1	.9	11.0	17.2	2.3	19.4
1945	15.3	1.7	16.9	10.2	1.6	11.8	17.4	2.3	19.7
1946	17.0	1.9	17.8	10.6	1.8	12.4	19.3	3.2	22.5
1947	18.5	2.0	19.7	11.9	2.2	14.1	21.1	3.6	24.8
1948	20.0	2.3	21.2	12.9	2.1	15.0	21.9	4.2	26.1
1949	17.6	1.6	19.9	12.2	1.6	13.8	20.3	4.4	24.7
1950	20.7	1.8	23.6	14.8	2.3	17.1	24.4	4.6	29.0
1951	25.1	2.6	26.5	16.5	2.2	18.7	26.0	4.5	30.6
1952	25.1	2.3	26.5	16.5	1.7	18.2	24.4	4.6	29.0
1953	26.3	1.5	28.1	17.5	2.0	19.5	26.5	4.8	31.3
1954	27.0	1.6	29.2	18.3	1.6	19.9	26.7	4.5	31.2
*1955	30.0	2.0	33.0	20.5	2.0	22.5	30.2	4.5	34.7

* Estimated. Subject to revision.
Note: Data do not necessarily add to total because of rounding.
1/ Includes changes in stocks for all years 1941 through 1955.

Source: Bureau of the Census, U. S. Dept. of Commerce, and Forest Service, U. S. Dept. of Agriculture

the 43 million cords required for both domestically produced and imported pulp, paper and board. By 1975, it is estimated that net imports of pulpwood will show little change and that the equivalent of 12 million cords of pulpwood may be imported in the form of woodpulp and paper. Thus pulpwood demands on domestic forests in 1975 may amount to at least 42 million cords or 40 percent more than the current pulpwood cut.

Softwoods preferred for pulpwood

Southern pine, western hemlock, Douglas-fir, spruce and true firs are most in demand for pulpwood and these species have long been the principal source of pulpwood used for pulp and paper manufacture in this country and in Canada. It is estimated that softwoods make up about 81 percent of the current pulpwood cut. In the South, softwoods comprise about 84 percent of the total cut, in the North 58 percent and the West almost 100 percent of the total. Softwoods are generally preferred over hardwoods for pulping because of longer fiber length and greater strength for pulp and paper.

Consumption of hardwoods has been expanding, however, as a result of declining supplies of softwood timber and development of more efficient pulping processes. This has been particularly true in the North where the stands of preferred spruce and fir have not been adequate to meet expanding demands of the pulp industry. Although the proportion of hardwood pulpwood to softwood pulpwood has not changed appreciably for many years, production has risen from about 0.8 million cords in 1920 to 5.7 million cords in 1955. A future trend towards the use of more hardwood is expected as a result of the new pulping processes suitable for hardwoods, the higher yields obtainable per cord of wood and increasing competition for the available softwood timber supplies.

Pulpwood production concentrated in the South

Pulpwood production in the South has increased rapidly from about 1 million cords in 1930 to an estimated 18.1 million cords in 1955 (Table 4, Chart 6). This present cut of pulpwood is equivalent to nearly two-thirds the volume of sawlogs produced in this region, and about one-third of the total timber cut for all products including fuelwood. To an increasing extent the same sizes and species of timber are utilized for sawlogs and pulpwood in the South.

The rapid growth of the pulp and paper industry in the South and expected future expansion are based upon a number of favorable factors. These include good location with respect to markets; reasonable security of future raw material supplies based upon rapid tree growth; ample supplies of labor, year-long woods work and comparatively easy logging conditions; availability of water, chemicals and power; and excellent transportation facilities for both pulpwood and finished products.

Table 4

Estimated pulpwood production in the United States by regions, and by hardwoods and softwoods, selected years 1899-1955

Year	All Regions			North			South			West
	Total	Hardwoods	Softwoods	Total	Hardwoods	Softwoods	Total	Hardwoods	Softwoods	Total 1/
	Million Cords									
1899	1.6	.5	1.2	1.4	.5	1.0	--	--	--	.2
1905	2.5	.4	2.1	2.5	.4	2.1	.1	--	.1	--
1910	3.1	.8	2.3	2.8	.7	2.1	.3	.1	.1	.1
1916	4.4	.7	3.7	4.2	.6	3.6	.2	.2	.1	--
1920	5.0	.8	4.3	4.5	.5	4.0	.4	.3	.1	.2
1925	5.0	.7	4.3	4.1	.4	3.7	.6	.3	.3	.3
1930	6.1	.8	5.3	3.9	.4	3.5	1.0	.4	.5	1.2
1935	6.6	.9	5.7	2.9	.3	2.6	1.4	.6	.9	2.2
1941	14.2	1.8	12.3	4.4	1.1	3.3	7.2	.7	6.4	2.6
1942	14.9	1.9	13.0	5.0	1.2	3.8	7.3	.7	6.6	2.6
1943	13.6	1.8	11.8	4.0	1.1	2.9	7.1	.7	6.5	2.5
1944	15.3	2.0	13.4	4.6	1.0	3.5	8.2	1.0	7.2	2.6
1945	15.3	2.1	13.1	4.9	1.1	3.8	7.9	1.0	6.8	2.5
1946	17.0	2.6	14.4	5.5	1.3	4.2	8.8	1.2	7.6	2.6
1947	18.5	2.5	16.0	5.7	1.4	4.3	9.2	1.2	8.1	3.6
1948	20.0	2.5	17.5	5.4	1.2	4.2	11.4	1.3	10.1	3.3
1949	17.6	2.3	15.3	4.6	1.3	3.3	9.9	1.0	9.0	3.1
1950	20.7	2.9	17.8	5.0	1.7	3.3	12.4	1.3	11.2	3.3
1951	25.1	3.8	21.3	6.4	2.2	4.2	14.1	1.6	12.4	4.7
1952	25.1	3.7	21.4	5.9	1.9	4.0	14.7	1.7	13.0	4.5
1953	26.3	4.4	21.9	5.4	2.4	3.0	16.1	2.0	14.1	4.7
1954	27.0	4.8	22.2	5.8	2.5	3.3	16.3	2.2	14.1	4.9
*1955	30.0	5.7	24.3	6.6	2.8	3.8	18.1	2.9	15.2	5.3

* Estimated. Subject to revision.

Note: Data may not add to totals because of rounding.

1/ Practically all softwoods.

Source: Bureau of the Census, U. S. Dept. of Commerce, and Forest Service, U. S. Dept. of Agriculture

Considerable competition has developed between pulp mills and between pulp mills and sawmills for the available supply of softwood timber in many parts of the South. Yet further expansion of the southern pulp industry is to be expected because of such factors as strong bargaining power, ability to use small size low grade material, and the increasing number of smaller sized trees in southern forests.

Pulpwood production in the West increased from about 0.3 million cords in 1925 to an estimated 5.3 million cords in 1955, including about 2 million cords of plant residues (Table 4, Chart 3). Further increases in production in this region are also expected. Western forests, although amounting to less than one-fourth of the total commercial forest area, contain about one-half of the cubic volume of timber in the United States (Chart 4). This region also has large quantities of unused plant residues suitable for pulp manufacture.

Pulpwood production in the North is not expected to change much from present levels in the near future, although production of hardwood pulpwood is expected to increase while softwood pulpwood may decline. Fifty years ago, the North supplied nearly all of the pulpwood produced in the United States and as late as the early 1930's supplied more than half of the cut (Table 4, Chart 7). Since then production has increased slowly and the region has declined in importance as a producing region. This has resulted from local depletion of softwood timber resources with consequent high costs of raw materials, strong competition from other regions, and local problems such as stream pollution. There are increasingly large volumes of second-growth hardwood timber in this region which can support substantial increases in output.

Pulpwood prices stable in recent years

Pulpwood prices show a considerable amount of variation in the different regions, depending upon species, local timber supplies and other factors. In the Lake States the price of rough pulpwood f.o.b. cars averages about $23.75 per cord for spruce, $16.00 for pine and $10.50 for aspen and northern hardwoods. In the Northeast, prices f.o.b. car average about $18.50 per cord for spruce and fir and $14.00 for pine, aspen and mixed hardwoods. In the South, prices per rough cord f.o.b. car average about $13.65 for pine and $12.85 for hardwoods. Supplies of pulpwood seem ample to meet anticipated demands in 1956 and no substantial changes in prices are expected.

Since the 1930's, pulpwood prices have advanced rapidly. Prices for southern pine pulpwood, for example, increased from $3.60 per cord in 1938 to $13.80 as of September, 1955 as shown in the following tabulation:2/

2/ Prices shown in this tabulation represent the weighted average of all rough pine pulpwood loaded on railroad cars, delivered to barge landings or trucked to pulp mills in the Southeast.

Year	Average price	Year	Average price
1938	$ 3.60	1947	$ 10.95
1939	3.90	1948	11.70
1940	4.15	1949	11.00
1941	4.60	1950	11.90
1942	6.00	1951	13.85
1943	7.25	1952	13.90
1944	8.20	1953	13.80
1945	8.45	1954	13.75
1946	10.10	Sept. 1, 1955	13.80

The Demand and Price Outlook for Veneer Logs and Bolts

Veneer log consumption rising rapidly

Consumption of veneer logs and bolts in the United States has risen from 0.7 billion board feet in 1925 to 3.0 billion board feet in 1955 -- an increase of 329 percent (Chart 9). Most of this increase has been in consumption of softwood veneer logs which rose from 0.2 billion board feet in 1925 to an estimated 2.0 billion board feet in 1955. Consumption of hardwood veneer logs during this same period increased from 0.5 billion board feet to about 1 billion board feet.

In 1956 veneer log consumption is expected to increase slightly with most of the expected increase in softwood veneer logs and bolts. This reflects an anticipated rise in the use of softwood plywood both in construction - the use which accounted for most of the rapid increase in consumption after 1925 - and in shipping and fabricated products.

Almost all of the softwood veneer logs are produced in the West while the hardwoods are produced in both the South and the North. Limited quantities of veneer logs, chiefly specialty hardwoods, are imported into the United States.

By 1975 substantial increases are expected in the demand for both softwood and hardwood veneer logs. Potential demands in 1975 at prices somewhat above current levels, are estimated at 2.7 billion board feet for softwood and 1.8 billion board feet for hardwood veneer logs. The total anticipated demand of 4.5 billion board feet represents an increase of 50 percent over the 1955 level of consumption. Most of the anticipated increase is based on greater use of softwood plywood in construction.

Veneer log prices, both for softwoods and hardwoods, have risen rapidly and the general trend of prices is likely to continue upward, primarily because of a growing scarcity of the high quality timber demanded for veneer and plywood.

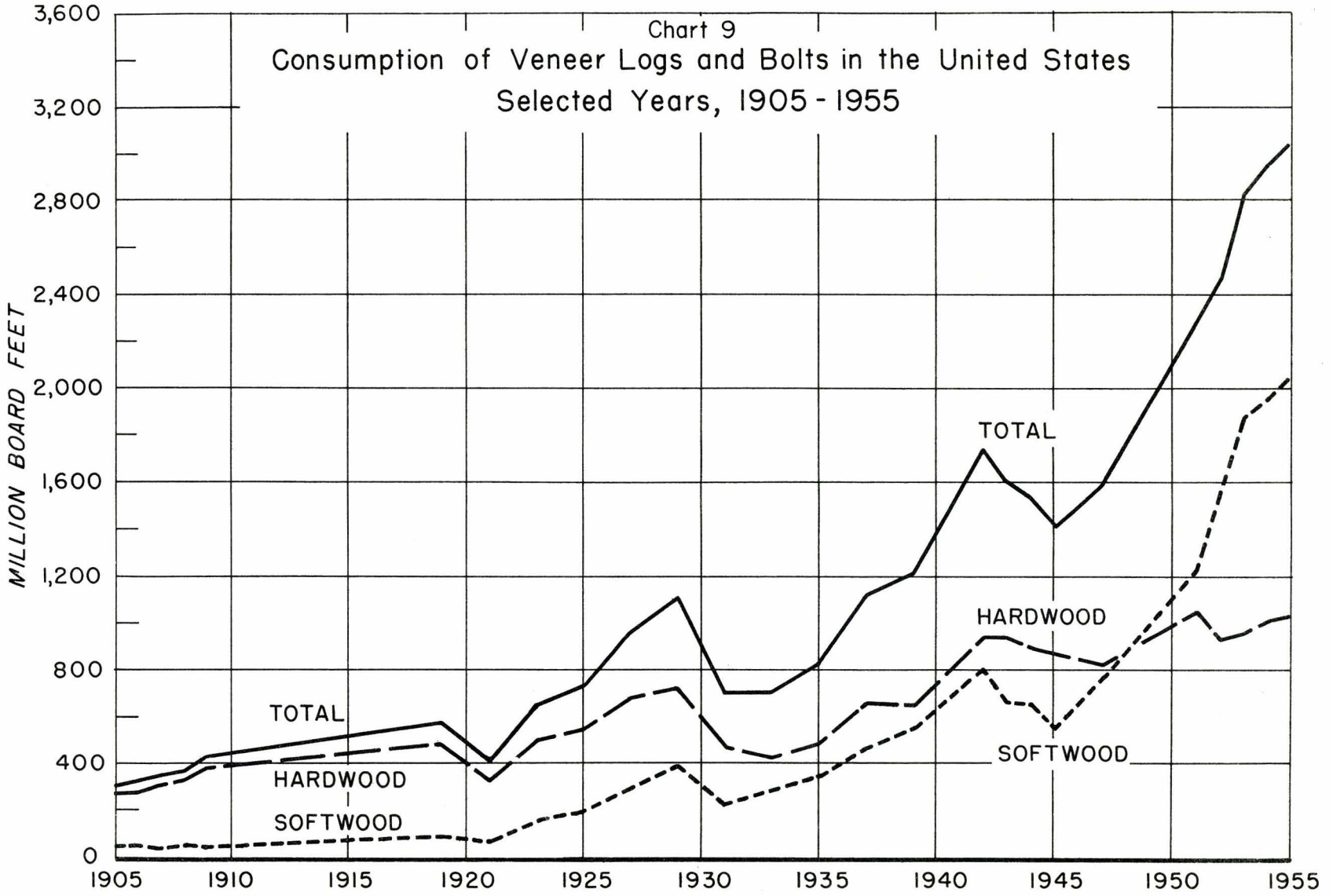


Chart 9
Consumption of Veneer Logs and Bolts in the United States
Selected Years, 1905 - 1955
MILLION BOARD FEET
3,600
3,200
2,800
2,400
2,000
1,600
1,200
800
400
0
1905
1910
1915
1920
1925
1930
1935
1940
1945
1950
1955
TOTAL
HARDWOOD
SOFTWOOD
TOTAL
HARDWOOD
SOFTWOOD

Demand and Price Outlook for Other Timber Products

Fuelwood consumption declining

Consumption of fuelwood for domestic use in 1955 is estimated at about 25 million cords of roundwood, plus an additional 27 million cords of plant residues. Fuelwood consumption in 1955 represents less than half of that prevailing 25 years ago as a result of widespread substitution of more convenient fuels such as coal, oil, gas and electricity. Further declines in the use of fuelwood is expected. By 1975 total consumption of fuelwood for domestic and industrial purposes is estimated at about 40 million cords including only 20 million cords of roundwood. Since a substantial part of the roundwood cut consists of dead and cull trees it is estimated that no more than 10 million cords may be drawn from timber growing stock.

Consumption of other products show variable trends

Mine timbers - An estimated 90 million cubic feet of round, split and hewn mine timbers are currently used in mines of the United States. This is only about half the level of use in the 1920's. The decline in use primarily is a result of substitution of sawn timbers, greater use of steel, and changes in mining practices. In view of expected increases in coal and ore production some slight increase in the use of mine timbers is expected in the future.

Cooperage logs - About 350 million board feet of logs and bolts were used by the cooperage industry in 1955; little change is expected in 1956. Use of wood for cooperage has declined greatly during the past three decades as a result of the substitution of steel and fiber containers, changes in methods of merchandising, and the decreasing availability of high quality cooperage timber. It is anticipated that markets for white oak cooperage for whiskey barrels will remain firm, but the future of cooperage for other purposes does not appear bright.

Hewn ties - About 4 million hewn ties, representing about 12 percent of the total number of cross ties installed, are currently used by railroads in the United States. Hewn ties are produced chiefly in the South of southern yellow pine and oak timber. The 1955 level of hewn tie consumption represents only about one-tenth of the level which prevailed during the 1920's, due primarily to substitution of sawn for hewn ties. A general downward trend in consumption of hewn ties and a continued shift to sawn ties is expected. Thus, by 1975 it is estimated that consumption may amount to no more than about 3 million ties per year.

Poles and piling - About 6 million utility poles and 40 million linear feet of piling are currently used in the United States. No significant change in consumption is expected in the near future, although by 1975 demands for poles are expected to drop somewhat.

Miscellaneous products - Current consumption of a variety of minor products such as shingle logs, turnery logs and bolts, small dimension stock, distillation wood, farm timbers, and other miscellaneous products amounts to about 250 million cubic feet of wood annually. No change in consumption seems likely in 1956, although use of such products by 1975 is expected to increase somewhat.

Domestic Consumption Rising. Domestic consumption of both rosin and turpentine in the crop year beginning April 1, 1955 is expected to exceed that of a year earlier. (See table 5 and chart 10.) Rosin should be at least 11 percent higher and turpentine about 6 percent above last year's levels. No significant change is expected in the 1956 crop year.

Unlike many agricultural commodities, rosin is an industrial raw material. Therefore consumption depends in part on the rate of industrial activity, particularly as related to paper and chemical products. Although industrial utilization of turpentine has been increasing for the past two decades, the outlet for over half the output continues to be in sales over-the-counter to householders for paint thinning, cleaning and other uses. In general, nearly all of the sulphate wood turpentine is consumed industrially while practically all of the steam distilled wood and gum turpentine find their way to the retail market in small containers. On the basis of consumption during the past 33 years, the long-term outlook for both rosin and turpentine consumption appears favorable (table 6).

Table 6.

Rosin and Turpentine
Production, Domestic Consumption and Exports, Averages
1922-31, 1932-41, 1942-51, and 1952-54

Crop Years Begin. April 1	Production	Consumption	Exports
	Rosin [1/] (Thous. drums of 520 lbs. net)		
1922-31 Avg.	1,766	811	972
1932-41 Avg.	1,845	1,029	782
1942-51 Avg.	1,982	1,519	506
1952-54 Avg.	2,075	1,507	555
	Turpentine (Thous. 50-gallon barrels)		
1922-31 Avg.	626	357	267
1932-41 Avg.	616	409	219
1942-51 Avg.	596	504	104
1952-54 Avg.	574	504	95

1/ Including equivalent drums of tall oil resin acids computed on basis of 45 percent content.

Table 5

Supplies and Requirements, Rosin and Turpentine
By Types, Crop Years 1948-49 through 1954-55
(Actual) and 1955-56 (Estimated)

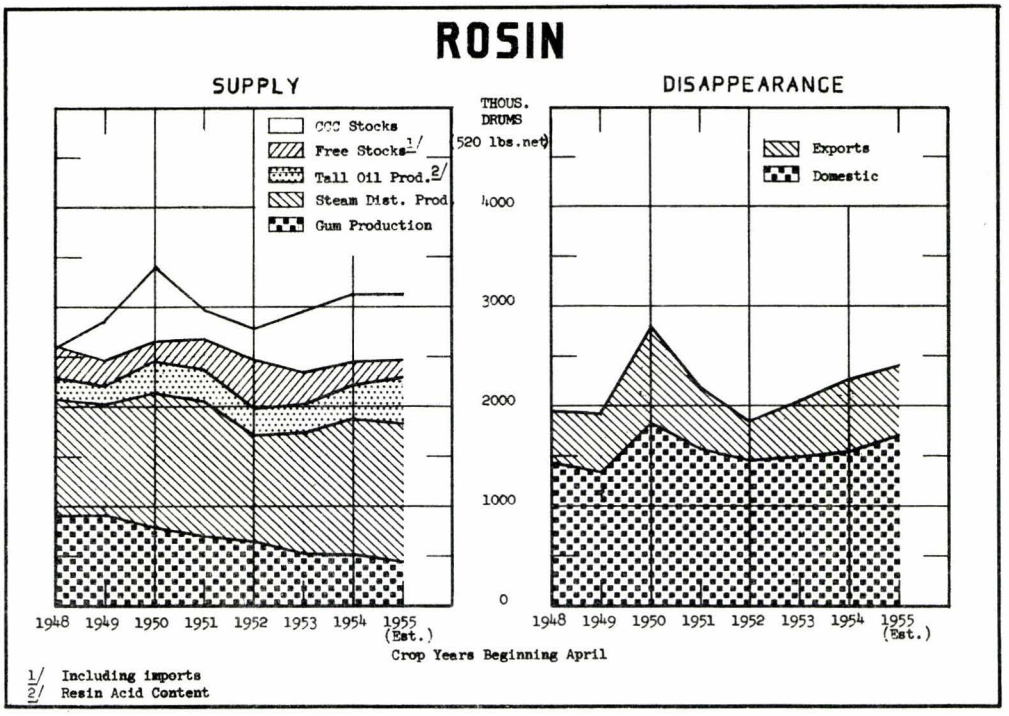
Crop Year Beginning April 1	Commodity and Type	SUPPLY: Carry-in Stocks 1/	SUPPLY: Production	SUPPLY: Imports	SUPPLY: Available Supply	REQUIREMENTS: Domestic	REQUIREMENTS: Export	REQUIREMENTS: Total	Carry-out Stocks
	Rosin (520 lb. drums)								
1948	Gum	162,090 2/	921,220	1,071	1,084,381	370,583	236,228	606,811	477,570 2/
	S.D. Wood	115,890 2/	1,154,890	-0-	1,270,780	864,071	266,049	1,130,120	140,660 2/
	Tall Oil 3/ & Tall Oil Rosin	39,408	214,500	-0-	253,908	188,570	24,325	212,895	41,013
	Total	317,388 2/	2,290,610	1,071	2,609,069	1,423,224	526,602	1,949,826	659,243 2/
1949	Gum	477,570 2/	924,900	4,229	1,406,699	347,152	256,927	604,079	802,620 2/
	S. D. Wood	140,660 2/	1,098,610	-0-	1,239,270	842,512	305,098	1,147,610	91,660 2/
	Tall Oil 3/ & Tall Oil Rosin	41,013	191,473	-0-	232,486	153,026	28,331	181,357	51,129
	Total	659,243 2/	2,214,983	4,229	2,878,455	1,342,690	590,356	1,933,046	945,409 2/
1950	Gum	802,620 2/	797,620	4,475	1,604,715	550,584	595,591	1,146,175	458,540 2/
	S. D. Wood	91,660 2/	1,339,410	-0-	1,431,070	985,348	345,682	1,331,030	100,040 2/
	Tall Oil 3/ & Tall Oil Rosin	51,129	316,144	-0-	367,273	282,466	39,618	322,084	45,189
	Total	945,409 2/	2,453,174	4,475	3,403,058	1,818,398	980,891	2,799,289	603,769 2/
1951	Gum	458,540 2/	716,350	1,980	1,176,870	392,190	293,140	685,330	491,540 2/
	S. D. Wood	100,040 2/	1,333,040	-0-	1,433,080	923,479	278,561	1,202,040	231,040 2/
	Tall Oil 3/ & Tall Oil Rosin	45,189	323,546	-0-	368,735	258,489	37,260	295,749	72,986
	Total	603,769 2/	2,372,936	1,980	2,978,685	1,574,158	608,961	2,183,119	795,566 2/
1952	Gum	491,540 2/	638,360	3,000	1,132,900	312,563	138,577	451,140	681,760 2/
	S. D. Wood	231,040 2/	1,082,530	-0-	1,313,570	917,178	218,062	1,135,240	178,330 2/
	Tall Oil 3/ & Tall Oil Rosin	72,986	267,033	-0-	340,019	239,611	28,208	267,819	72,200
	Total	795,566 2/	1,987,923	3,000	2,786,489	1,469,352	384,847	1,854,199	932,290 2/
1953	Gum	681,760 2/	531,620	1,410	1,214,790	348,050	132,100	480,150	734,640 2/
	S. D. Wood	178,330 2/	1,213,340	-0-	1,391,670	913,880	384,350	1,298,230	93,440 2/
	Tall Oil 3/ & Tall Oil Rosin	72,200	273,752	-0-	345,952	240,133	35,825	275,958	69,994
	Total	932,290 2/	2,018,712	1,410	2,952,412	1,502,063	552,275	2,054,338	898,074 2/
1954	Gum	734,640 2/	527,700	390	1,262,730	345,220	208,840	554,060	708,670 2/
	S. D. Wood	93,440 2/	1,342,370	-0-	1,435,810	887,420	458,470	1,345,890	89,920 2/
	Tall Oil 3/ & Tall Oil Rosin	69,994	347,209	-0-	417,203	317,759	60,519	378,278	38,925
	Total	898,074 2/	2,217,279	390	3,115,743	1,550,399	727,829	2,278,228	837,515 2/
1955	Gum	708,500 2/	435,000	500	1,144,000	400,000	169,000	564,000	575,000 2/
	S. D. Wood	90,000 2/	1,390,000	-0-	1,480,000	935,000	455,000	1,390,000	90,000 2/
	Tall Oil 3/ & Tall Oil Rosin	39,000	460,000	-0-	499,000	380,000	60,000	440,000	59,000 2/
	Total	837,500 2/	2,285,000	500	3,123,000	1,715,000	684,000	2,399,000	724,000
	Turpentine (50 gal. bbls.)								
1948	Gum	87,390 2/	324,330	13,613	425,333	227,287	70,916	298,203	127,130 2/
	Wood (Total)	107,960 2/	334,810	-0-	442,770	294,442	45,768	340,210	102,560 2/
	S. D.	4/	207,160	-0-	4/	4/	4/	4/	4/
	Sulphate	4/	124,870	-0-	4/	4/	4/	4/	4/
	D. D.	4/	2,780	-0-	4/	4/	4/	4/	4/
	Total	195,350 2/	659,140	13,613	868,103	521,729	116,684	638,413	229,690 2/
1949	Gum	127,130 2/	323,010	14,170	464,310	240,380	99,270	339,650	124,660 2/
	Wood (Total)	102,560 2/	350,280	-0-	452,840	315,256	56,284	371,540	81,300 2/
	S. D.	4/	199,630	-0-	4/	4/	4/	4/	4/
	Sulphate	4/	147,500	-0-	4/	4/	4/	4/	4/
	D. D.	4/	3,150	-0-	4/	4/	4/	4/	4/
	Total	229,690 2/	673,290	14,170	917,150	555,636	155,554	711,190	205,960 2/
1950	Gum	124,660 2/	271,880	16,771	413,311	239,940	137,771	377,711	35,600 2/
	Wood (Total)	81,300 2/	436,670	-0-	517,970	354,117	70,693	424,810	93,160 2/
	S. D.	4/	237,080	-0-	4/	4/	4/	4/	4/
	Sulphate	4/	194,180	-0-	4/	4/	4/	4/	4/
	D. D.	4/	5,410	-0-	4/	4/	4/	4/	4/
	Total	205,960 2/	708,550	16,771	931,281	594,057	208,464	802,521	128,120 2/
1951	Gum	35,600 2/	246,460	19,092	301,152	174,571	67,251	241,822	59,330 2/
	Wood (Total)	93,160 2/	437,500	-0-	530,660	352,286	43,254	395,540	135,120 2/
	S. D.	4/	229,590	-0-	4/	4/	4/	4/	4/
	Sulphate	4/	203,430	-0-	4/	4/	4/	4/	4/
	D. D.	4/	4,480	-0-	4/	4/	4/	4/	4/
	Total	128,760 2/	683,960	19,092	831,812	526,857	110,505	637,362	194,450 2/
1952	Gum	59,330 2/	217,360	19,636	296,326	173,084	43,042	216,126	80,200 2/
	Wood (Total)	135,120 2/	347,580	-0-	482,700	294,635	39,115	333,750	148,950 2/
	S. D.	4/	175,090	-0-	4/	4/	4/	4/	4/
	Sulphate	4/	169,560	-0-	4/	4/	4/	4/	4/
	D. D.	4/	2,930	-0-	4/	4/	4/	4/	4/
	Total	194,450 2/	564,940	19,636	779,026	467,719	82,157	549,876	229,150 2/
1953	Gum	80,200 2/	177,680	22,830	280,710	156,500	34,880	191,380	89,330 2/
	Wood (Total)	148,950 2/	360,170	-0-	509,120	348,470	53,070	401,540	107,580 2/
	S. D.	4/	193,090	-0-	4/	4/	4/	4/	4/
	Sulphate	4/	164,220	-0-	4/	4/	4/	4/	4/
	D. D.	4/	2,860	-0-	4/	4/	4/	4/	4/
	Total	229,150 2/	537,850	22,830	789,830	504,970	87,950	592,920	196,910 2/
1954	Gum	89,330 2/	175,940	15,360	280,630	145,950	50,240	196,190	84,440 2/
	Wood (Total)	107,580 2/	441,860	-0-	549,440	392,150	65,620	457,770	91,670 2/
	S. D.	4/	207,700	-0-	4/	4/	4/	4/	4/
	Sulphate	4/	231,750	-0-	4/	4/	4/	4/	4/
	D. D.	4/	2,410	-0-	4/	4/	4/	4/	4/
	Total	196,910 2/	617,800	15,360	830,070	538,100	115,860	653,960	176,110 2/
1955	Gum	84,000 2/	145,000	16,000	245,000	140,000	46,000	186,000	59,000 2/
	Wood (Total)	92,000 2/	488,000	-0-	580,000	430,000	50,000	480,000	100,000 2/
	S. D.	4/	200,000	-0-	4/	4/	4/	4/	4/
	Sulphate	4/	285,000	-0-	4/	4/	4/	4/	4/
	D. D.	4/	3,000	-0-	4/	4/	4/	4/	4/
	Total	176,000 2/	633,000	16,000	825,000	570,000	96,000	666,000	159,000 2/

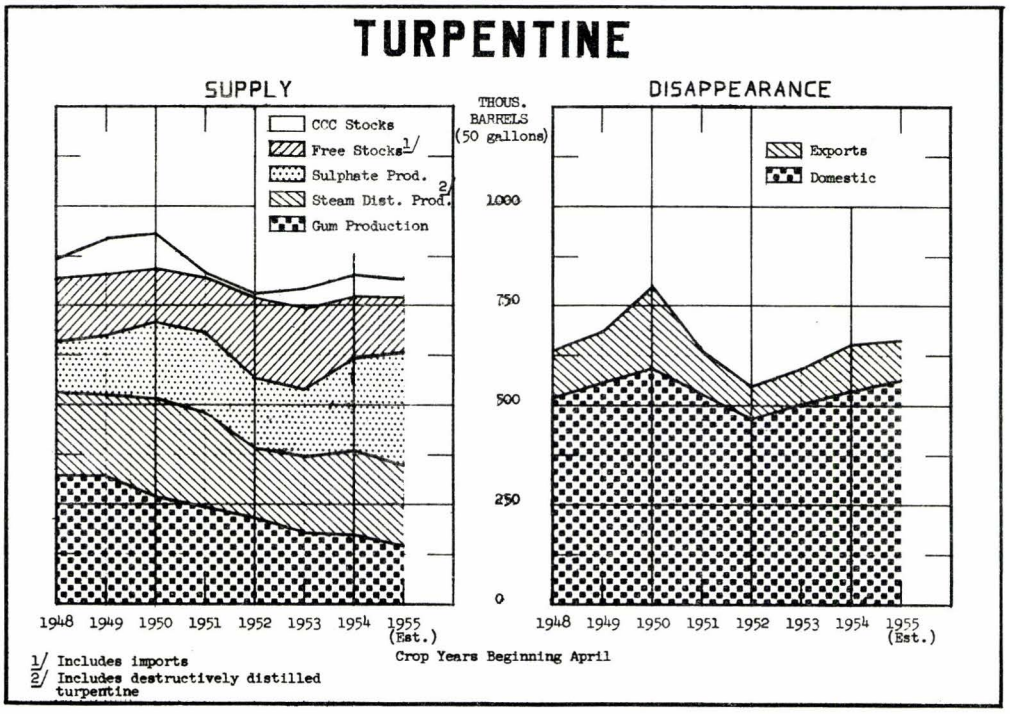
1/ Includes CCC loan stocks.
2/ These are gross stocks and include turpentine and rosin sold and awaiting shipment.
3/ Resin Acid Equivalent.
4/ No breakdown practicable from existing information.

Source: Data for crop years 1948 through 1953 derived from information released by the Agricultural Marketing Service, U.S.D.A., and Department of Commerce.

Supply and Disappearance - Rosin and Turpentine

Crop Years Beginning April 1948 through 1955





Output Rise Expected in 1955. About 2,285,000 drums [1] of rosin [2] (including the resin acids in tall oil) and 633,000 barrels [3] of turpentine are expected to be produced in the 1955 crop year, an increase of 2 1/2 percent over the previous year. A 3-4 percent increase in steam distilled rosin production and a nearly one-third increase in the production of tall oil resin acids should more than offset a 17-18 percent decline in gum rosin output. A 23 percent increase in sulphate wood turpentine production is expected to overcome an 18 percent fall in gum turpentine output and a 3-4 percent reduction in output of steam distilled turpentine.

Further Increase in Output Likely in 1956. Next year may be the fourth year in a row for rosin production [2] to increase; turpentine output is expected to rise for the third straight year. Increases are anticipated in the production of gum rosin and gum turpentine, tall oil and tall oil wood rosin and sulphate turpentine. The peak of steam distilled wood rosin and turpentine output probably has been reached and no increase in 1956 above the 1955 level is likely.

The increase expected in gum rosin and gum turpentine output would reverse a downswing which has been in effect since 1949. The actual quantities to be produced will depend on developments which cannot now be foreseen clearly. As always, temperature and rainfall will be important factors. Equally as important will be the extent to which pulp mill timber owners are willing to grant leases of more than one or two year periods to attract naval stores operators. Following severe forest fires earlier this year, timber owners reportedly are seeking increased forest supervision and caretaker service. Steam distilled wood rosin and turpentine output will stay at about present levels if, as expected, demand remains strong.

The quantity of tall oil rosin produced in 1956 will depend in part on the extent to which markets are developed to absorb the fatty acid content of the crude tall oil.

Long Term Outlook. From table 6 above, it is apparent that over the years domestic rosin production has been rising and turpentine output falling.

In rosin, the expansion of the wood naval stores part of the industry (including tall oil) more than offsets the shrinkage of gum output. While the same alteration in production patterns has occurred in the case of turpentine, in contrast to its rosin counterpart, output has declined slightly. Partial explanation of this

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1/ 520 lbs. net each.
2/ Including the resin acid content of tall oil.
3/ 50 gallons each.

lies in the declining yields of gum and steam distilled wood turpentine relative to rosin output. (See table 7 below.) Also the proportion of turpentine to rosin is considerably smaller in steam distilled output (which has been rising) than in gum production (which has been falling).

Table 7.

Turpentine Yields Per Drum of Rosin
1924, 1934, 1944 and 1954

Crop Years Begin. Apr. 1	Gallons Turpentine Output Per Drum of Rosin		
	Steam Distilled	Gum	Both Types Weighted Avg.
1924	14	19	18
1934	10	18	16
1944	9	18	14
1954	8	17	10

The trend in turpentine production probably will be reversed and increased supplies of both rosin and turpentine appear in prospect for the next several years. Within the limits fixed by a rapidly shrinking supply of first growth long leaf pine stumps, the steam distilled part of the naval stores industry is likely to continue producing at or near capacity as long as demand remains strong. Expansion of sulphate pulp production is expected to continue and with it the output of tall oil and sulphate wood turpentine. The present low level of gum naval stores production results in large part from competition of expanding industrial and forestry enterprises. Only about 7 percent of the timber suitable for gum naval stores production now is being so utilized. However, the growing interest of some pulp mills in leasing forest tracts for naval stores operations together with the prospect of lower production costs through continuing research on increased crude pine gum yields and lower labor requirements, may arrest or reverse the decline in gum output.

Lower Stocks in Prospect. Both rosin and turpentine stocks are expected to be lower at the beginning of the next season than at any time since April 1, 1952. Nearly 3/4 of the rosin and 1/5 of the turpentine carry-in for 1956 will be comprised of CCC stocks. Total rosin stocks should constitute a 3 1/2 to 4 month supply compared with the long time average of about 5 months. Overall turpentine stocks should approximate a three month supply compared with a long time average of about 2 1/2 months.

Exports Lower in 1955. Exports may be somewhat lower this year as compared with 1954 because of the increased production, primarily in Portugal and France, which should more than offset the increased foreign consumption resulting from expanded industrial output abroad. The increase in 1955 foreign rosin and turpentine output is estimated (see table 8) at about 17 and 14 percent, respectively. Foreign export availabilities should be about

Production of turpentine and rosin[1] by specified countries[2], calendar years (except where otherwise noted) average 1950-54, 1954 and 1955.

Country	TURPENTINE (50 gal. bbls.)					
	1950-54 Average		1954		1955 (Est.)	
	Quantity	Percent of Total	Quantity	Percent of Total	Quantity	Percent of Total
	1,000 Bbls.	Percent	1,000 Bbls.	Percent	1,000 Bbls.	Percent
United States 3/	622.6	67.5	617.8	67.8	633.0	65.4
France 4/	89.8	9.7	88.0 5/	9.6	95.0	9.8
Portugal	62.4	6.8	56.4	6.2	86.0	8.9
Spain	51.7	5.6	51.4	5.6	55.0	5.7
Mexico	33.7	3.7	35.3	3.9	35.0	3.6
Greece	20.9	2.3	24.3	2.7	25.0	2.6
Sweden	40.6	4.4	38.0 5/	4.2	39.0	4.0
Total	921.7	100.0	911.2	100.0	968.0	100.0

Country	ROSIN (520 lb. drums)					
	1,000 Drums	Percent	1,000 Drums	Percent	1,000 Drums	Percent
United States 3/	2,210.0	75.1	2,217.3	75.5	2,285.0	73.0
France 4/	230.2	7.8	220.0 5/	7.5	245.0	7.8
Portugal	173.6	5.9	157.0	5.3	240.0	7.7
Spain	122.1	4.2	124.7	4.3	136.0	4.3
Mexico	104.4	3.5	102.2	3.5	102.0	3.3
Greece	52.5	1.8	62.7	2.1	65.0	2.1
Sweden 6/	49.1	1.7	53.0 5/	1.8	55.0	1.8
Total	2,941.7	100.0	2,936.9	100.0	3,128.0	100.0

1/ Including resin acid content of crude tall oil.
2/ Although the USSR is believed to be a substantial producer of naval stores, no current information is available from this source.
3/ Crop years April 1 through March 31. Includes gum, steam distilled wood, sulphate wood, and destructively distilled wood naval stores. Resin acid content of crude tall oil computed at 45 percent.
4/ Crop years May 1 through April 30.
5/ Preliminary.
6/ Assuming 40 percent resin acid content of crude tall oil.

Sources: Foreign production data from official trade statistics, U.S. Foreign Service dispatches and foreign trade sources; U.S. data from AMS and Bureau of the Census reports.

40,000 barrels of turpentine and 120,000 drums of rosin more than in 1954 but, as already indicated, part of this should be absorbed by rising consumption abroad.

Foreign stocks should be negligible at the end of the producing season. This factor, together with expectation of relatively little change in foreign naval stores output next year (possibly a slight increase if weather is favorable), points to about the same quantity of exports in 1956 as in 1955.

An interesting development in the foreign naval stores situation during the past year has been the attempted formation of a cartel to market the European naval stores production. Other developments of interest, which may eventually affect the foreign market for American naval stores, include discovery of oil in the naval stores producing region in Southwestern France and the construction of several sulphate pulp mills in Europe including one in Portugal.

Over a long period, the export outlet for both rosin and turpentine has become progressively less important. Whereas, 20 years ago over half the rosin output and about 40 percent of the turpentine production was absorbed by the foreign market, during the past five years exports accounted for less than 30 percent of domestic rosin output and 20 percent of the turpentine production.

Prices to Hold Near Present Levels. Prices of rosin and turpentine are likely to stay close to present levels well into 1956. Although foreign supplies of naval stores should be exhausted early next year, it is doubtful whether any resultant increase in export demand will be sufficient to raise prices substantially above the present level.

Gum turpentine prices and the price of rosin in drums probably will average about 8 percent higher than last year. This would be the highest since the crop year ending March 31, 1952. The price of turpentine, however, still is expected to average substantially under the 61 cents per gallon average for the past ten years. Prices of gum rosin in bags and tank cars presently are at premiums compared to prices for rosin in drums. This is due mainly to the fact that rosin shipped in bags and tank cars is for the expanding domestic market and does not compete with foreign output which, at present, is being offered at prices below corresponding quotations for American production. Also, some processors are unable to deliver gum rosin in bags while others prefer not to because of the additional time, labor and other factors involved. Finally, the absence of any significant carry-over of crude gum from last year's crop forces bagged and

Table 9

Gum Rosin, Gum Turpentine, Crude Pine Gum and the Naval Stores Unit, Market, Parity and Support Prices and Net Volume of Price-Support Acquisitions or Disposals, 1934-55

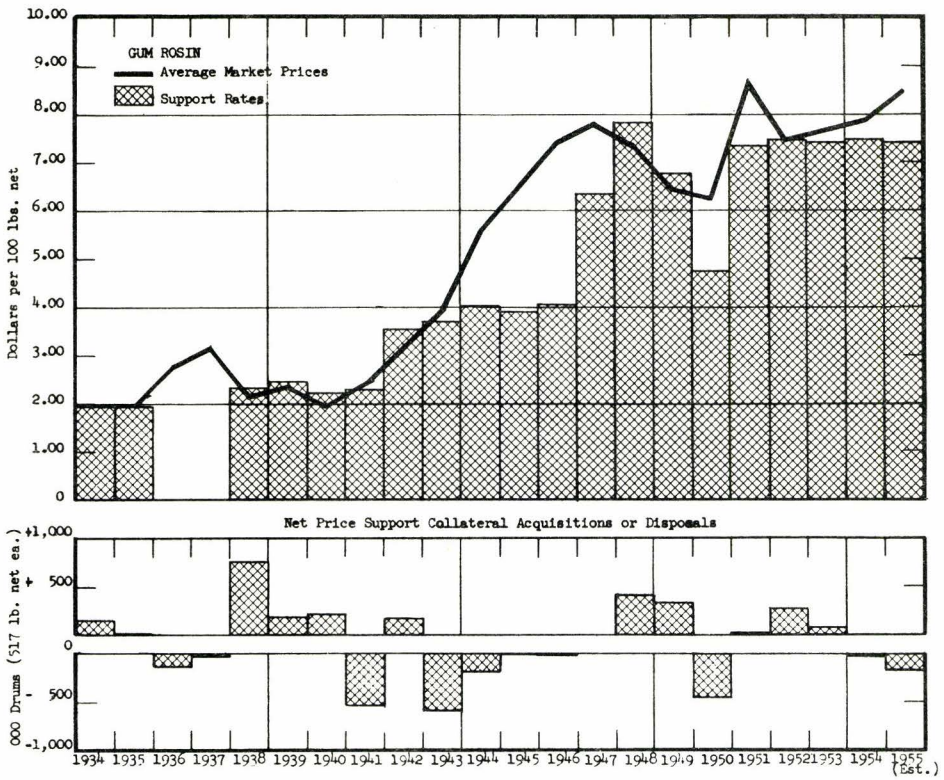
Crop Year beginning April 1	ROSIN: Average Market Price 1/	ROSIN: Average Price Support Rates	ROSIN: Net Change in CCC Stocks	TURPENTINE: Average Market Prices 1/	TURPENTINE: Average Price Support Rates	TURPENTINE: Net Change in CCC Stocks	CRUDE GUM: Average Market Price	CRUDE GUM: Average Price Support Rates 13/	NAVAL STORES UNIT 4/: Average Market Value 1/	NAVAL STORES UNIT 4/: Parity, 5/ processed basis	NAVAL STORES UNIT 4/: Average Support Value	NAVAL STORES UNIT 4/: Support Value as percent of Parity
	$ per 100 lbs. net		Drums 2/	$ per gallon bulk		Barrels 3/	$ per standard barrel 6/		$ per naval stores unit			Percent
1934	1.98	1.95	≠ 150,000	.396	.420	≠ 92,000	-0-	10.28	47.52	74.06	48.30	65
1935	1.97	1.95	≠ 9,000	.376	.420	≠ 55,000	-0-	10.28	46.38	76.98	48.30	63
1936	2.79	7/	- 126,000	.315	7/	- 69,000	-0-	7/	54.81	73.34	7/	7/
1937	3.20	7/	- 33,000	.254	7/	- 32,000	-0-	7/	57.50	79.81	7/	7/
1938	2.18	2.34	≠ 764,000	.166	.194	≠145,000	-0-	9.04	38.82	75.83	42.48	56
1939	2.37	2.44	≠ 188,000	.193	.197	- 91,000	-0-	9.36	42.83	73.34	44.01	60
1940	1.98	2.21	≠ 207,000	.240	.217	- 8,000	7.56 12/	8.89	39.72	74.68	41.79	56
1941	2.42	2.28	- 540,000	.527	.287	- 92,000	11.70	9.84	60.23	74.68	46.27 8/	62
1942	3.22	3.55 9/	≠ 160,000	.591	.650 9/	≠154,000	14.60	17.49	74.63	88.63 10/	82.20 10/	93
1943	3.97	3.70 9/	- 589,000	.679	.680 9/	≠ 70,000	17.70	18.26	89.53	90.26	85.80 10/	95
1944	5.61	4.03 9/	- 183,000	.779	.740 9/	- 94,000	23.50	19.88	117.49	98.41	93.42 10/	95
1945	6.50	3.89	- 2,000	.791	.720	-129,000	26.40	19.25	130.55	100.76	90.46	90
1946	7.43	4.05	- 6,000	.967	.744	- 1,000	30.80	19.98	152.37	104.21	93.92	90
1947	7.83	6.35	-0-	.627	.608	≠ 53,000	28.20	25.32	140.97	132.25	119.02	90
1948	7.39	7.94	≠ 407,000	.428	.483	≠ 36,000	24.40	28.00	124.86	146.20	131.58	90
1949	6.47	6.78	≠ 344,000	.384	.400	- 4,000	20.90	24.29	109.78	142.70	114.14	80
1950	6.31	4.77	- 440,000	.551	.400	- 75,000	22.60	18.47	115.89	144.70	86.82	60
1951	8.73	7.37	≠ 10,000	.763	.500	≠ 1,000	30.50	27.28	160.37	142.46	128.21	90
1952	7.53	7.48	≠ 283,000	.534	.500	≠ 34,000	24.50	27.60	132.12	144.13	129.72	90
1953	7.72	7.44	≠ 68,422	.516	.500	≠ 14,000	24.60	27.62	133.88	144.24	129.81	90
1954	7.91	7.48	- 17,000	.519	.500	- 5,000	25.00		136.69	143.35	130.33	90
1955 (Est.)	8.52	7.43 11/	- 157,000	.560	.500	- 30,000	27.90	27.45	147.28	142.03	129.02	90

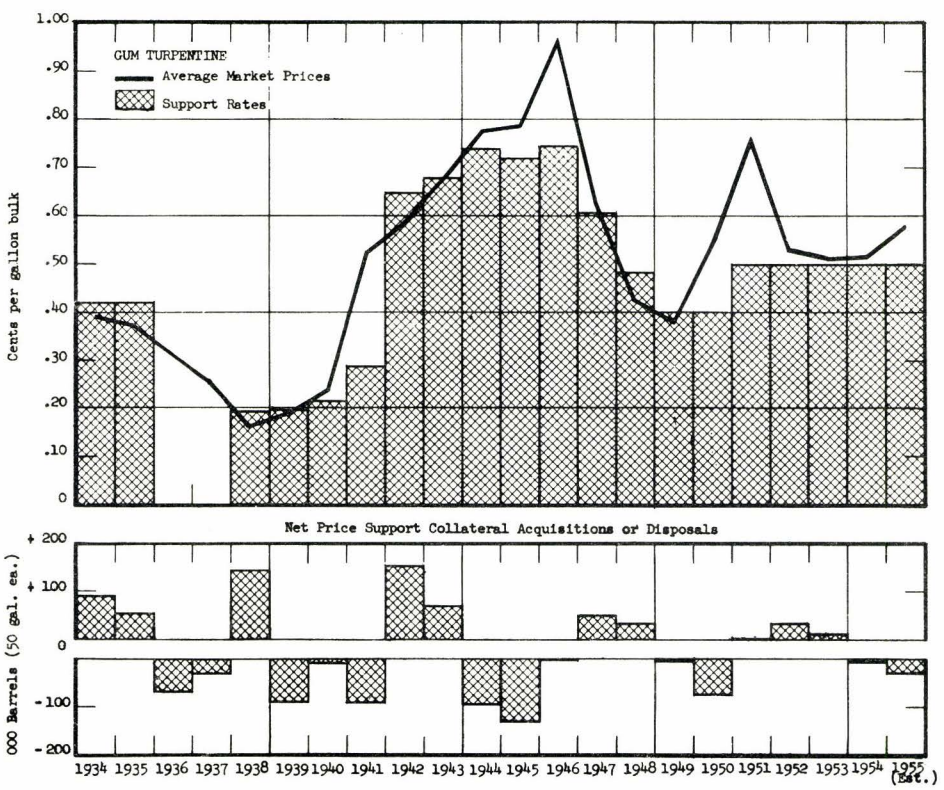
1/ Quotations of Savannah Cotton & Naval Stores Exchange (1934-50). Reports of Naval Stores Market News Service (1951-55).
2/ Averaging 517 lbs. net.
3/ 50 gallons each.
4/ 50 gallons of turpentine and 1,400 pounds of rosin.
5/ Through the 1950 loan program, parity was computed on processed rosin and turpentine. Thereafter, however, parity was computed on the crude pine gum from which these commodities are derived.
6/ 435 pounds net.
7/ No program.
8/ Weighted average. Loan rates were $41.93 through 8/1/41 and $48.93 after 8/1/41.
9/ Represents purchase rates with rosin basis K grade. Loan rates were lower as follows:
1942 program - $3.05 for rosin, $.55 for turpentine;
1943 program - $3.50 for rosin, $.64 for turpentine;
1944 program - $3.82 for rosin.
The 1944 program was inactive because of higher market values.
10/ Represent purchase program rate. Loan program rates in 1942 averaged $70.20 per unit or 85 percent of December 1, 1941 parity ($82.56); under the 1943 program per unit loan rate was $81.00 or 90 percent of parity; under the 1944 program the 90 percent of parity loan rate was $88.48 per unit.
11/ Basis grade WG.
12/ No information available prior to 1940.
13/ Crude gum price support rates 1934 through 1950 computed on basis of 4.7 standard barrels of gum per naval stores production unit. Actual support rates 1951 through 1955.

Chart 11

GUM ROSIN AND GUM TURPENTINE

Average Market Prices and Support Rates
and
Net Price Support Collateral Acquisitions or Disposals
Crop Years, 1934 through 1955





AGRICULTURE, CSS - TOBACCO DIVISION

tank car rosin to come from this year's all time low gum output.

The present strong market situation continues the trend which began more than two years ago. Last year all loans under the 1954 program were redeemed and about 15,000 drums of rosin and 4,000 barrels of turpentine sold from CCC stocks acquired under the 1953 and prior programs. This year, the 1955 loan program has been inactive and through November 10, 113,298 drums of CCC rosin and 16,407 barrels of CCC turpentine have moved into consumption to fill the gap between requirements and free supplies. Before the end of the crop year, CCC stocks are likely to be called on for substantial additional quantities of rosin and turpentine.

The important influence of price support programs on naval stores prices over the past two decades is shown in table 9 and chart 11. It will be observed from the net changes in price support stocks that in many years rosin and turpentine prices were bolstered through net accumulations of collateral. In other years, when liquidations exceeded loans, prices tended to be depressed. Finally, there were years when program pledges and disposals were about equal with the result that CCC operations apparently had little or no overall effect on prices.